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An Inaugural Address
ON
THE MEDICAL STUDENT AND HIS CURRICULUM, FROM A TEACHER'S POINT OF VIEW.

Delivered before the Leeds and West Riding Medico-Chirurgical Society.

BY JOHN BENJAMIN HELLIER, M.D. LOND.,
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GENTLEMEN,—For more than a quarter of a century I have taken active part in the task of helping to pilot medical students through the curriculum appointed for them. As demonstrator and private coach, as lecturer, clinical teacher and professor, and university examiner, and as sharer in the counsels of those responsible for the carrying on of the School of Medicine in Leeds, I have been obliged to keep my attention constantly focussed on the ever-changing and ever-increasing demands of licensing authorities, and on the efforts which have to be made by both students and teachers to comply with these. I hope that I am not choosing an unacceptable topic if I speak to you for a little while on the Medical Student and His Curriculum from a Teacher's Standpoint. I am sure that it is a subject which needs the consideration of the whole profession.

The education of a medical student may be measured according to three different standards. First there is *the ideal*—that is, the best possible that can be attained by a student of first-class abilities when any reasonable demand for time and money can be met. I may say at once that I shall not spend time in discussing the ideal curriculum. When a student has brains and time in abundance his teachers' task is light. Our difficulties are in inverse proportion to the degree in which these factors are in evidence. Secondly, there is *the legal minimum*—that is, the least degree of education that is compatible with admission to the profession. This is a matter of obvious importance, and in England the legal minimum has reached a critical point of evolution which we will discuss later. Thirdly, there is *the actual standard* attained by each individual student as the net result of all that he has learned, diminished by what he has forgotten or learned amiss. It is the net amount of professional equipment which as the outcome of all his labours and sufferings, successes and failures, he carries out with him into the world of practice.

The amount of such equipment is an important consideration, for success in the struggle for existence is gained in proportion as a man exceeds the average. It is a serious question, for professional life is one long competitive examination, and when the student has, to use his own expression, "passed his final" this other severe and merciless inquisition is still before him.

The question of immediate interest to the student is how he may soonest make an end to his curriculum. The broader question which interests us is: *How far does that curriculum furnish the best possible preparation for the future?* I doubt if we could discuss a more interesting question than this: What was the actual amount of serviceable knowledge or regrettable ignorance with which we each started practice and how would we wish the curriculum to be remodelled if we could do it all over again in the light of present experience?

Keeping in mind the limitations proper to such a presidential address, I will glance at the past, the present, and the immediate future of the medical curriculum.

In looking into the medical education of the past we find much of vivid interest which appeals strongly to a teacher and which will, I think, interest you. The task of prescribing a high ideal for the medical student and practitioner is one that seems to have had an attraction for professional writers in all ages. If there is one thing that the medical student has *not* lacked it is good advice, and the crop of inaugural orations which the first of October annually produces are a polite education in themselves, but they have very ancient prototypes. You will find some words of wisdom by Susruta, a Sanscrit writer, whose date is anything from 600 to 1000 B.C. May I quote a few sentences?

> Students of medicine should receive both theoretical and practical training. First they should read medical treatises and then learn the practice of the art. The man who has nothing but a theoretical training and is unskilled in the details of treatment, knows not what to do when he comes to a patient, and behaves himself as pitiably as a coward on a battlefield. On the other hand, a doctor who is only practical does not win the esteem of the best men. Both these classes of incompletely prepared doctors are not fitted for practice any more than a bird is fit to soar into the air with only one wing. ..... Such people only obtain permission to practise when the government is careless or lax.

So that in his day there was some legal minimum. It is interesting to find this same teacher advising his students to *keep their hair and nails short and to wear white linen coats.* This, at all events, is up to date! One more piece of wisdom coming from 26 centuries back you must allow your president to quote to you:—

> Intercourse with other doctors is to be strongly recommended, for conversation with colleagues increases knowledge, confers pleasure, enlarges experience, imparts readiness of speech, and increases consideration. A man can learn even from his opponents, for [he very finely says] *the whole world may be called a teacher of the man of understanding and is a foe only to fools.*

But long before Susruta's time there were famous academies of learning in Egypt, where medicine was taught amongst other branches. Such were found at Heliopolis and Memphis and Thebes. Here were resident students living under the inspection and discipline of their teachers. These teachers were not free from some of the anxieties which others in later days have experienced. We find one of them writing to a pupil named Emena in these terms:—

> It has been reported to me that thou neglectest thy studies and seekest only thine own pleasure, wandering from tavern to tavern. But what profiteth the smell of beer? Avoid it; for it drives people away from thee, impoverishes thy wits, and likens thee to a broken oar upon the deck of a ship.

So that the "slacker" would seem to be co-eval with the pyramids.

The medical student in the golden age of Greece, in the time of Hippocrates and his successors, was trained with solicitous care. Each student was attached to one particular teacher who taught him everything, caring for his health and welfare generally. The well-known oath of Hippocrates sufficiently demonstrates the high ethical standard adopted by the Hippocratic school, and the profession was held in the highest honour, which even an approximate carrying out of such a standard would well deserve. There was, however, no restriction on practice, and anyone could practise who thought he had the requisite knowledge.

Later on in Rome, in Galen's time, we find the teacher with pupils attached to him, whom he takes with him to visit his patients, or whom he instructs in so-called *Tabernae medicinae*, which seem to have been open surgeries, where he and they live together. It is on record that the patients did not always appreciate these visits, especially when 30 students came at once. There is an epigram by Martial on his doctor Symmachus which satirises this practice somewhat forcibly:—

> I was ill. Thou camest forthwith to me accompanied by 100 pupils. One hundred ice-cold hands were laid on my body. Till then I had no fever. Now I have!

There were no legal restrictions on practice in Rome and they suffered badly from a surfeit of specialists.

The most striking example of a complete curriculum in ancient times was found in the famous school of Salerno, which flourished 900 years ago and which remained pre-eminent in Europe for two centuries. Hither came William the Conqueror for treatment of a wound. Amongst its teachers were some distinguished women, one of whom, named Trotula, wrote a treatise on gynæcology, which, I regret to say, I have not had the advantage of studying. But the extraordinary enlightenment of the wise men of those days is seen in the fact that their teachers of medicine were exempted from payment of taxes. O, for those golden days! Here in Italy in 1140 we find King Roger promulgating a law which reads as follows:—

> Whoever from this time forth desires to practise medicine must present himself before our officials and judges and be subject to their decisions. Anyone audacious enough to neglect this shall be punished by imprisonment and the confiscation of his goods. This decree has for its object the protection of the subjects of our kingdom from the dangers arising from the ignorance of practitioners.

In 1240 the Emperor Frederick II. gave complete rules in regard to the subjects to be studied at Salerno:—

> Since it is possible for a man to understand medical science only if he has previously learned something of logic, we ordain that no one

shall be permitted to study medicine until he has given attention to logic for three years. After these three years he may, if he wishes, proceed to the study of medicine. In the study he must spend five years, during which period he must also acquire a knowledge of surgery, for this forms part of medicine. After this but not before permission may be given him to practise, provided that he passes the examinations prescribed by the authorities and at the same time produces a certificate showing that he studied for the period required by law. The teachers must during these five years expound in their lectures the genuine writings of Hippocrates and Galen on the theory and practice of medicine. But even when the prescribed five years of study are passed, the doctor should not forwith practice on his own account but for a full year more he should habitually consult an older and more experienced practitioner in the exercise of his profession.

If anyone practised without a licence he was liable to have his property confiscated and to be imprisoned for a year. Here, gentlemen, you have a preliminary education, a five years' curriculum, a qualifying examination, an enforced period of post-graduate study, and a sufficient penalising of the unqualified practitioner.

From very early times there have been two ways of learning the profession: first, the way of pupilage or apprenticeship; secondly, the academic method—that is, study at a school or university, and obviously the two may be combined. The school at Salerno and also that at Montpellier were real technical schools of medicine, but those who in the Middle Ages studied medicine at some of the universities found that it occupied a very modest place and was studied in a very deplorable manner, for the medical course dealt almost wholly with the writings of the ancients, grossly neglecting clinical and practical work. The greatest stress was laid on discussion and disputation and on a display of classical learning and dialectic skill. In our day there is nothing which we are less disposed to tolerate than a man of words and antiquated ideas, whose rhetorical powers are as great as his clinical experience is inappreciable, and who discourses with prolixity on what he has never seen or handled. We call him a windbag, and exclaim with Hamlet: "Words, words, words!"

Degrees in medicine could in some places be obtained with a facility that even an American bogus university could not outdo. At some of the French universities the M.D. could be bought for money. In Padua the custom was in vogue of candidates bringing with them to the examinations assistants who whispered to them the answers to the questions. In some cases the questions with appended answers were issued to the candidates before the examinations.

The sixteenth century saw the dawn of modern science, and the seventeenth and eighteenth saw the sunrise. The authority of the ancients was subverted by the introduction of the methods of inductive science and experimental observation. There were giants in the earth in those days—Galileo, Bacon, Harvey, Newton, Linnaeus, Malpighi, Boyle, Cavendish, Scheele, Torricelli, and their like. Anatomy, physiology, natural philosophy, and chemistry made rapid advance. Then came the Chamberlens with their forceps; Locke, Sydenham, Smellie, and the Hunters. New academies and learned societies were founded, the great medical schools had their beginnings, there was more dissection, and museums began to be established. Clinical teaching began at the universities, such as Leyden, at Paris, at Vienna, and there was more practical instruction outside the hospitals by the bedside. So that by the end of the eighteenth century there was a wide and ever-widening field before the medical student, and the man who had the *will* to learn and the means to enable him to seek and utilise the best training available might go through an ideal curriculum and find such teachers as the Hunters, Astley Cooper, Sir Charles Bell, Abernethy, and their followers; but there was no legal minimum and no restriction on unqualified practice, and the apothecary of those days, as the general practitioner was called, was a most irregular and uncertain quantity.

Fortunately, there are always men who can make their own curriculum, who can find out for themselves what there is to be learned and how to learn it. Many of the men who have done the most to advance our art have succeeded in spite of the want of early advantages. It is, of course, this very power of finding their way unaided that carries them first abreast and then far beyond their contemporaries. To get an idea of how a student of first-rate abilities learned his art at this time I have been reading again the life of the first William Hey, who lived in Leeds from 1736 to 1819, and was the father of Leeds surgery.

Hey began a seven years' apprenticeship to an apothecary at the age of 14, when he had to undertake some duties which his biographer calls menial. I suppose that he had to sweep the surgery floor and so on, but at the end of those seven years, being a man of phenomenal industry, he was proficient in the practice of medicine so far as it was understood in Leeds in the eighteenth century. Incidentally I may mention that he nearly poisoned himself with personal experiments on drugs. Then he went to London for two years and began by working 12 hours a day at anatomy, doing original anatomical research at the age of 21, and being, of course, most mercilessly chaffed by his fellow students for being such an unconsionable "grind." Then he went on to the hospital, working for all that he was worth, but being careful to study only one principal subject at a time and attaching himself to one teacher at a time until he had thoroughly mastered that teacher's ideas and methods, catechising him diligently for that purpose. One of these teachers, it is worth noting, was John Hunter. His father then suggested that he should go to Paris, but Hey decided not to go, in which decision he probably made a mistake, for even wise young men sometimes may with advantage have their decisions over-ruled by greater experience.

But all this is a most interesting study. You see the man making the curriculum, and not the curriculum the man. I do not defend a seven years' curriculum beginning at 14 with sweeping the surgery, but there is something to be said for this when it is contrasted with a five years' curriculum during three years of which the student never comes near a patient. How wise he was to work at one principal subject at once! How lucky he was to be able to do it! Men of this type are the joy of their teachers. They have a fine independence of external stimulus, they have their own methods of working. They are able to see without being shown, and they always seem to know a little more than you might expect. How they contrast with the men who always seem to know a little less than you expect, who want to have everything done for them, who cannot even see what is pointed out, and who surprise you only by what they forget, and who when the coach who has carried them through leaves them to themselves seldom travel much further. The most important thing that any student ever learns is to teach himself. This may seem an obvious platitude, but it is the last thing a good many medical students realise.

In Hey's day the land was full of apothecaries, some of whom were mere glorified grocers and many more who corresponded to the prescribing druggists and herbalists of to-day. In 1815 the Society of Apothecaries came to the rescue with an Act preventing anyone from practising as apothecary without passing the Hall. And then they took the first great step towards improving the curriculum by instituting a preliminary examination in general education. The medical schools of England no doubt originated in the attempt to provide for the instruction of the private pupils of the members of the staff by a process of division of labour. The opportunities before those who wished to learn become greater and greater, and from 1836 onwards the University of London began to invite medical students everywhere to come to her to be sifted with small sieves. But all this time there was no legal minimum, and the medical student needed not to be examined unless he liked—a rather serious option to put before him.

In 1858 came the Medical Act fixing a legal minimum for the first time for every practitioner. Of the work of the General Medical Council in raising the standard of professional attainment one would speak with the highest respect, but for a long time the man who wished to enter with the least possible amount of work had his way all too easy. When I joined the medical school here in the early "seventies" those of us who were in the grip of the University of London or of the F.R.C.S. course had to work all the time, and there were many others who did the same, but a single qualification was then sufficient and the course for the M.R.C.S. was not exacting. After the preliminary examination held by the College of Preceptors had been passed, and it could be taken one subject at a time, there was no examination till the end of the second winter, and that was an examination in anatomy with only one question in physiology. For the minimum man there was no examination in chemistry, physics, or biology, or materia medica. At the final there was a fair examination in surgery, a very easy one in medicine, and none at all in

midwifery or anything else. The effect of having no examination in these subjects was that a large proportion of the men did not work at them. There were lectures in these subjects, but provided that the student attended enough to be signed up he did not feel it on his conscience to work at them. Consequently a large number of first and second years' men had the general aspect of men who were "having a day out," although they were always "going to begin to work next session." I think that in my day a botany lecture showed the medical student in his most vivacious phase.

But the General Medical Council was on the track of the minimum men, and a steady change has been going on ever since in the direction of greater requirements, more examinations, more subjects to be studied, more certificates of instruction received, and the pendulum has swung heavily in the other direction.

There has been a continuous raising of the legal minimum, a constant growth in the curriculum and in the demands of the licensing bodies. I am not about to weary you with the history of 30 years of medical education, but I want to compare *then* with *now*. It seems to me that ever since I have been a member of the Board of Medicine, we have had almost every year some change or other in the course which we have had to arrange for our students, and that it has been one constant effort first to understand what was wanted, and then to find a place to fit it into.

Perhaps some of you hardly realise how little power any individual school has to alter the curriculum even at a University such as we are now become. The requirements of the General Medical Council are our law, and I believe that in our own case it would not be possible to omit any single course of lectures or even to shorten one materially, without failing to comply with some regulation. Periodically our examinations are visited and our attention is drawn to any part where our inquisition is judged to lack severity. We can add what we like, but cannot subtract. Now what has it come to?

The minimum curriculum now requires five years with three examinations. The first may be taken in two or three parts, the second in one, the final in three, so that for the Conjoint Board seven separate trips to London may be needed even if one has not to be repeated, which has been known to happen. The student is examined in chemistry, physics, biology, practical pharmacy and materia medica, anatomy, physiology, medicine (including medical anatomy, pathology and therapeutics, forensic medicine and public health), surgery (including surgical anatomy and pathology), and the use of surgical appliances. He is required to take lectures in all these subjects, with practical and laboratory work. He is examined in midwifery and gynæcology and has to attend maternity cases. He has to take hospital practice and act as clerk and dresser and post-mortem clerk. He has to receive instruction in the administration of anæsthetics and vaccination and to attend the fever hospital and the lunatic asylum, and should know something about the diseases of eye, ear, skin, and throat, with some insight into practical bacteriology and the work of the clinical laboratory, and always on his bookshelves is a long row of text-books, of which he has to absorb the contents as he goes along. And if he has not done all this in five years, and especially if he has had a slip in one of his many examinations, the parents and guardians begin to question whether the young man is all that he ought to be.

As a matter of fact, recent investigations have shown that in the year 1906 the time taken on the average to complete the five years' curriculum in 1111 cases was 7 years in England, 5½ in Scotland, and 6 years in Ireland, with an average of 6½ for the United Kingdom.

From my soul I pity the medical student. Every hour of his time is taken up, and he has the harassing experience of having to hurry from one thing to another with no time to do anything thoroughly. The medical student to-day has *not* the air of a man who is having his day out. If I wished to sketch a typical medical student to-day I should not draw Mr. Bob Sawyer. I should picture a pale young man, with an anxious expression of countenance who looks as though a little more out-door exercise and physical culture would do him a great deal of good. He is hurrying from the school to the hospital with a notebook under his arm, and he explains that he is late for the wards because he has been detained at a lecture, and he confides to you that he is going up next month for the first part of his final, and that he has some hope but no certainty of getting through this time.

Gentlemen, in saying that the medical curriculum to-day is overcrowded, and that it is defeating its own purposes, I am not giving you novel opinions of my own. I am quoting the serious judgment of many of our best authorities. I would especially refer to an address by Sir Felix Semon in 1907, in which he compares the English and German curriculum in a very fair and striking manner. I would refer to an address delivered at Sheffield in 1908 by Professor E. H. Starling, and to Sir W. Whitla's address at Belfast recently, as well as to much that has been said at the meetings of the General Medical Council by Sir Henry Morris and Mr. Pridgin Teale. For more than 40 years we have had warnings from wise men that we are striving to enforce an impossible standard. See, for instance, what Dr. John Brown wrote in the preface to the first series of his "Horæ Subsecivæ." I have not time to quote this, but I cannot refrain from quoting some sentences written by O. W. Holmes in an address on Clinical and Bedside Teaching which was delivered at Harvard University in 1867 and which you will find in his collected medical essays. After a most delightful description of what bedside teaching may be, he continues:—

> When I compare this direct transfer of the practical experience of a wise man into the mind of a student,—every fact one that he can use in the battle of life and death,—with the far-off, unserviceable "scientific" truths that I and some others are in the habit of teaching, I cannot help asking myself, whether if we concede that our forefathers taught *too little* there is not a possibility that we may sometimes attempt to teach *too much*. I almost blush when I think of myself as describing the eight several facets on two slender processes of the palate bone, or the seven little twigs that branch off from the minute tympanic nerve, and I wonder whether my excellent colleague feels in the same way when he pictures himself as giving the constitution of neurin, which, as he and I know very well, is that of the hydrate of trimethyl-oxyethyl-ammonium, or the formula for the production of alloxan, which, though none but the professors and older students can be expected to remember it, is—
>
> $$C_{10}H_4N_4O_6+2HO,\ NO_5=C_8H_4N_2O_{10}+2CO_2+N_2+NH_4,\ O,\ NO_5.$$
>
> I can hear the voice of some rough iconoclast addressing the anatomist and the chemist in tones of contemptuous indignation: "What is this stuff with which you are cramming the brains of young men who are to hold the lives of the community in their hand? Here is a man fallen in a fit; you can tell me all about the eight surfaces of the two processes of the palate bone, but you have not had the sense to loosen that man's neck cloth, and the old women are calling you a fool! Now here is a fellow that has just swallowed poison. I want something to turn his stomach out at the shortest notice. Oh, you have forgotten the dose of the sulphate of zinc, but you remember the formula for the production of alloxan!"

It is easy to see how the present state of things has come about. There was need to make the average student work harder; there is so very much more to be learned in every branch of medical study than formerly; the professor in every department is now a specialist and not a general practitioner; it seems to him that in his own department every student ought to spend more time rather than less. You know how the General Medical Council tried to remedy the starving of clinical work by putting on a clinical year, and how the clinical year was promptly crowded out by the preliminary subjects and the consequent delay of students from coming over to the hospital or the handicapping of those who come over with arrears of examination work. We have reached the present state of things when only the smartest men can pass with anything like punctuality, and even then we have no confidence that they are as fit for the work of the profession as five years' studentship ought to make them.

So much, then, for the "past history and present state." Now as to the future? *Have we any measures for prevention and treatment to recommend?* It is no good to say that we must get a better set of students. We have the average man to deal with, and we know by long experience just about what he can be expected to do, and you may take it that the whip of examination has already been used for all that it is worth, and more.

If we are to make any substantial improvement in the present state of things we must throw part of the curriculum overboard. All the cargo is doubtless more or less valuable, but if we are to save the ship from sinking we must save what is most essential at the cost of what can be better spared. Now, what is the most important thing which a student has to acquire? I have no hesitation in answering that the most essential thing is that he shall acquire an adequate knowledge of *the clinical art*. By this I mean the art of clinical investigation and proficiency in certain kinds of technique in medicine, surgery, and obstetrics, which are

as essential to him to master as it is to a captain to be able to take his latitude and longitude, to a carpenter to be able to use a plane and a saw, or to a blacksmith to be able to shoe a horse. Sir William Jenner used to say that a man seldom makes much advance on the equipment in regard to the use of the stethoscope and other clinical appliances and methods which he has attained when he finally leaves the hospital. To acquire the clinical art thoroughly is of more importance than to have had while yet a student a multitudinous experience of different diseases. It has been said that it is a very serious thing if a man who is just qualified does not recognise his first case of measles when he sees it. Still this is ignorance that is easily curable. But it is, indeed, a serious thing if a man just licensed to practise fails to recognise an empyema, or a tuberculous apex, or a well-marked case of carcinoma uteri or carcinoma recti through sheer omission of routine clinical examination or ignorance of what to look for or how to look. This is serious because such ignorance is so likely to persist.

Let us attempt to outline a schedule of what art and technique should be regarded as of imperative importance for every student, leaving for the time the specialist and the honours man to look after himself, and let us consider how much time is necessary for the purpose.

First of all the student must learn to take a clinical history, so that no material fact is omitted, and to make a physical examination of all the organs of the body so that no important sign or symptom is overlooked. I suppose that this may be said to be about as difficult as learning to play a musical instrument, involving not only knowledge of what to look for, but training eyes, ears, and fingers, and judgment to recognise and appreciate physical signs. This requires time and practice, and the study of such things as the use of the stethoscope and ophthalmoscope, the various tests applied to the nervous system, the reflexes, the electrical reactions, and so on.

Then there is the work of the clinical laboratory. The general practitioner must of necessity get much of this done by proxy, but certain clinical tests and microscopic and bacteriological work in the examination of urine, sputum, stomach contents, &c., and observations on the blood he should learn to do himself. Armed with such knowledge the student must observe a sufficient number of cases of disease as they become available for study. And then in addition he has to learn such bedside arts as washing out the stomach, dry-cupping, irrigating the bowel, faradisation, use of sera and vaccines, and other therapeutic measures.

On the surgical side he has to be drilled in the practice of asepsis, so that he may acquire the aseptic conscience, and some need more drilling than others. He has to learn all that is included in minor surgery—the use of bandages, splints, trusses, and surgical appliances generally; and he has a long series of manipulations in which to perfect himself, from tying a ligature and passing a catheter to tapping a chest and transfusing a patient. He has to learn a special series of diagnostic signs and symptoms in recognising surgical injuries and diseases; he has to learn to give anæsthetics; and he has to acquire experience of surgical emergencies and acute cases—a thing which is done only by hanging about the hospital and seizing opportunities, for strangulated hernias and dislocated joints and acute abdominal cases do not turn up at appointed hours.

In obstetrics he has now to learn the application of asepsis to labour by attendance first in a lying-in hospital. He has to learn the signs of pregnancy, especially external palpation. He has to attend his 20 cases, and he will have opportunities of seeing forceps applied and other obstetric operations provided he is on the spot when cases turn up and does not mind being fetched out of bed by telephone. In gynæcology he must learn to diagnose pelvic disease and pelvi-abdominal tumours and to perform minor gynæcological manipulations (and it takes a long time to get experience in gynæcology). He must have some knowledge of dermatology and of eye, ear, and throat work, sufficient at any rate to enable a general practitioner to recognise that disease is present and to see that acute conditions are not neglected. He has to see some fevers in the fever hospital and visit the asylum, and to learn the procedure of vaccination. Then there is the post-mortem room. Very few general practitioners ever make many necropsies, and a student's post-mortem work often has to last him for life. These things are best learned by a series of appointments, and we at Leeds have a very complete series of appointments which every man has to take. This needs time, but is a very good investment thereof. And the student also needs time to watch the material passing through the hospital generally, and to attend the systematic lectures and demonstrations which are given. Time is also needed to read, mark, learn, and inwardly digest the work of the day. Fill up this outline with anything which you think I have omitted. I must not omit to lay stress on study in the museum.

Here is three years' good work, work that must not be hurried and scamped. This is the part of the cargo which cannot be thrown overboard. To this must be added sufficient time for rest and physical exercise. This acquirement of the clinical art with clinical experience and ward and theatre drill should be the first charge on the years devoted to the curriculum, though it cannot come first in order of time, and room must be made for it somehow. This is the real apprenticeship to the profession, which is indispensable for efficiency. It is perfectly absurd that any of this should be sacrificed for less valuable matter or spoiled by overworrying the student about examinations in something else. But if a man does really learn all this well, then I for one believe that he may become an efficient practitioner, even though he be ignorant of some of the things which the syllabus of the Conjoint Examination Board says he ought to know, as, for instance, to quote from the latest one:—

> The synthesis of urea.
> The determination of empirical formulæ and molecular weight of organic compounds.
> The preparation of tartar emetic in well crystallised condition.
> The structure and life-history of Amœba, Protococcus, Paramoecium, and Spirogyra.
> The anatomy of Lumbricus.
> The structure of the dog fish.

I should not hesitate to place myself under the care of an otherwise competent practitioner because he was unable to distinguish between the leaves of Indian senna and Alexandrian senna, or between the aloes of Socotra and that which is imported from Barbados, or because he could not tell the right pisiform bone from the left or enumerate the branches of the spheno-palatine ganglion, or even because he was not skilled in taking tracings on a revolving drum.

Now comes the question, How shall we *make more time for the clinical course* upon which we thus emphatically insist?

First of all, it is not necessary to cram the curriculum into five years. The General Medical Council are not likely to extend the time at present, but the student can do it of set purpose. I say to parents who ask my advice, "The course is really a six years' course, if it is to be done thoroughly by the ordinary student. Don't worry the lad if he has not passed in five years. So long as he is working steadily he will be all the better for taking more time about it."

Next, it would be a great gain to require the student to obtain his knowledge of chemistry and physics before becoming a medical student. These branches are being more and more taught in schools and some even teach biology. I believe in "preliminary science" most heartily, just as I believe in a broad general education, but the present attempt to make *every* student a chemist and physicist does not work. The minimum standard exacted in these subjects is neither one thing nor the other. If a student has affinity for such studies let him take a thorough course, say a B.Sc. course or science tripos or its equivalent, before he becomes a medical student, and the more science he learns the better, but do not take the time off the five years' curriculum.

Next, the *intermediate* subjects can be cut down. As to materia medica, this is so obvious that I will not stay to discuss it. Anatomy and physiology can be cut down by omitting to teach the average student a great many details which have but little relation to the work of after life, and which no one in the profession who is not engaged in teaching ever does remember or is the worse for forgetting. This is what Professor Starling said last year at Sheffield, only he put it less crudely. He said that anatomical and physiological studies should be *directed*—i.e., directed with regard to the need of the practitioner. As a demonstrator I once knew my anatomy with some approach to thoroughness, and I heartily agree with Professor Starling. I must leave to those who have qualified last to say how far the modern course of physiology as taught could be reduced to essential principles

by the omission of details, but I have the conviction that the ship might be lightened here considerably.

Lastly, I should *make the clinical course more severe than ever*; I should make proficiency in this the principal test of qualification for practice. In examination I should remember that any man who is going in for any special work is *bound* to do post-graduate study, and I should examine in accordance with the requirements of general practice. A man who is going in for sanitary work, for instance, will have to take a D.P.H. course, and the average man, therefore, may be examined as though he was not about to become a medical officer of health. I should myself treat forensic medicine much in the same way.

Post-graduate work is the crown of medical education. After keeping so many things going at once it is a luxury to settle down to study one thing at a time, and you have a feeling that now you are qualified you can begin to learn something. There is nothing that increases a man's efficiency more than taking one or more resident hospital appointments. Here at Leeds we have so many appointments that all the best men can usually get an appointment (though not always the one they ask for). This is about the best possible kind of post-graduate work, and gives a man confidence throughout his life in tackling the more serious cases that come under his care. I think you will agree with me that courses of post-graduate study are becoming more and more desirable for all of us. And there is another thing which I should like to urge.

When a newly qualified man tells me that he is about to begin general practice on his own account and he has never done any before, I ask him whether he is ready for it. Does the hospital and school curriculum teach him all that he needs to know? Had he not better go and learn something about it before he begins. The bulk of general practice is made up of small ailments for which patients do not go to hospital, and which would receive scant attention if they did. Like the law, hospitals are "not concerned with trifles." *De minimis non curat lex.* Yet the small ailments matter very much to the patients, and to study the beginnings of disease in the homes of the patients, in the environment that gives rise to them, is one of the most important things in medicine. Besides many men have a lordly hospital manner which has to be unlearned. In hospitals if patients do not please us we turn them out. In private practice if we do not please them they turn us out. The way to manage a practice has to be learned. If a student just qualified will go to a practitioner who has a large practice and a good method, will give him the proper guarantee that he will not become a local competitor, and then stay with him six months or a year, he will learn from him what will make his own start far easier, and will save him from some initial mistakes which may otherwise retard his progress appreciably. I consider that such a period of post-graduate apprenticeship is so valuable and so inexpensive (for the man will earn his keep and pocket-money), that I am sure that every man would be the better for taking it. And if instead of a general practitioner he becomes a consultant he will be the better all his days for having at least a short experience of the inwardness of general practice.

Now let me sum up. I have not discussed the ideal curriculum for the man of the highest abilities and with ample means at his disposal, but I speak of the curriculum set before the average student which actually is taking him six and a half years to get through somehow. I agree with so many other teachers in saying that it is defeating its own ends in an impossible attempt to teach every man everything, and that this is damaging the clinical work. The present state of things may be amended by letting the student study preliminary science before beginning his five years' curriculum. The more he can learn under such conditions the better, and the degree of success he attains will be a guide to the kind of degree he should aim at later.

The intermediate subjects are to be taught with strict consideration of the needs of the future practitioner, the student having the option of taking an honours course if he wishes.

The clinical work is not to be cut down but to be taken in less of a hurry and with as much thoroughness as possible, and clinical examination is to be the great test of fitness for practice, care being taken that the student is tested by cases well selected from the ordinary run of hospital work and not by clinical riddles and pathological enigmas with which only a specialist can be expected to be familiar.

Every man should feel bound to carry on post-graduate study, and should, if possible, take a resident hospital post and a post-graduate apprenticeship in private practice.

I think some of the matters now exacted at the final might be left for post-graduate study.

I do not flatter myself, gentlemen, that I carry you with me in all that I have said, but I think many of you will agree with my main contentions. After all, our difficulties are the outcome of the growth of our art. It seems to me and my contemporaries that we have lived in the golden age. Have we not seen the glorious day of Lister and the revolution of the whole of surgical work which has followed, the triumphs of the modern operating theatre, the establishment of the germ theory of disease, the reading of the riddle of malaria, and other splendid achievements of preventive medicine; the discovery of X rays and of radium; and the wonderful contributions which pathology is making to therapeutics with antitoxins and vaccines? Can those who are just beginning expect to see as great an epoch-making period as that just experienced by us?

No doubt we shall have to renounce many things which we now do steadfastly believe, and some of the newer modes of treatment may take a humbler position than their originators anticipate, as has happened before; but though the tide may ebb and flow, who can doubt that there will ever be progress onwards? We may even now be on the verge of great discoveries which will eclipse what has been done in the past, and when the youngest member on our roll to-day shall some 30 years hence, by reason of seniority, take his place in this chair, he will doubtless make a telling inaugural address by contrasting the brilliant discoveries of his day with the exploded ideas and antiquated methods which prevailed in the year 1909. So let it be! For my own part, I do not hesitate to appropriate to the future of medical science the words of the ancient Hebrew poet, who says:—

> "As for truth, she abideth and is strong for ever.
> She liveth and conquereth for evermore."
> —1 Esdras iv. 38.

(In preparing this paper free use has been made of Dr. Th. Puschmann's "History of Medical Education" (English translation by E. H. Hare, 1896), to which most interesting work the author acknowledges his obligations.)

LONDON OPHTHALMIC HOSPITAL.—The annual dinner of past and present students of the Royal London (Moorfields) Ophthalmic Hospital will be held at the Trocadéro Restaurant on Wednesday, Jan. 26th, under the presidency of Mr. Edward Nettleship, consulting surgeon to the hospital. Tickets, price 10*s.* 6*d.*, exclusive of wine, may be obtained from the honorary secretaries, Mr. Arnold Lawson, 12, Harley-street, W., and Mr. J. Herbert Parsons, 54, Queen Anne-street, W.

THE PUTNAM JACOBI FELLOWSHIP FOR WOMEN.—The Women's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship of $800.00 available for post-graduate study. It is open to any woman graduate in medicine. The Fellowship will not be awarded by competitive examination, but upon proof of ability and promise of success in the chosen line of work. Applications for the year 1910–11 must be in the hands of the committee on award by March 1st, 1910, and must be accompanied by: (1) testimonials as to thoroughly good health; (2) letters as to ability and character; (3) a detailed account of educational qualifications; (4) a statement of the work in which the applicant proposes to engage while holding the Fellowship; and (5) examples, if any, of her work, in the form of articles, or accounts of investigations which she has carried out. When possible it is considered desirable that the applicant should present herself in person to the committee. Two reports will be expected from the holder of the Fellowship, one to be presented about the middle of the research and a detailed report upon its completion. As a rule, the Fellowship will be awarded but once to an applicant; in case of unusual ability a re-award will be considered. All applications for this Fellowship should be forwarded to the chairman of the committee on award, Dr. Emily Lewi, 35, Mt. Morris Park, West, New York City, U.S.A.

ABSTRACT OF THE

Fourth William Mitchell Banks Memorial Lecture

ON

RECENT OBSERVATIONS ON TUMOURS OF THE BRAIN AND THEIR SURGICAL TREATMENT.[1]

Delivered under the Auspices of the University of Liverpool,

BY HARVEY CUSHING, M.D.,

ASSOCIATE PROFESSOR OF SURGERY, THE JOHNS HOPKINS UNIVERSITY, BALTIMORE.

INTRODUCTION.

THE nervous system is acknowledged to offer more difficult and intricate problems of disease than any other structural subdivision of the body, and medicine, generally speaking, has willingly surrendered the disorders of this system to those whose inclinations prompt them to labour exclusively in this abstruse and, from a therapeutic point of view, most unpromising field. This arrangement, which has made neurology possible as a specialty, has been the chief element in the rapid furtherance of our knowledge concerning diseases of the nervous system, owing to concentration of attention upon them by a select body of men—a fact equally true of other branches which have become split off in similar fashion from the parent stem of medicine.

In one respect, however—in matters relating to surgical therapy—neurology has notably lagged behind other specialties in this general advancement. Regarding surgery as a legitimate and important adjunct to their therapeutic resources, a certain proportion of those who have made a special study of the diseases of one part or another of the alimentary canal, or of the female pelvic organs, or of the genito-urinary passages, or of the bones and joints, and so on, have trained themselves in the conduct of operative procedures, to the unquestioned benefit of their specialty. Few, if any, neurologists, however, through a personal interest in operative work, have similarly fitted themselves to undertake such surgical measures as may be demanded by certain of the maladies which they encounter. Consequently, when indications arise justifying or necessitating operative treatment the neurologist must usually turn to a general surgeon, who, without special knowledge of the physiology and pathology of the conditions of disease, is called upon to be the hands, as it were, which perform under the direction of another—a state of things comparable to that which existed in days not remote, when the herniotomist or cutter for stone was called in to operate under the direction and guidance of the physician—or worse, operated with no such control. This unfortunate relationship, under which the most serious kind of therapeutics—that of the scalpel—was left to a mere handicraftsman possessing little knowledge of disease, was the inevitable consequence of the unfortunate divorce of surgery from medicine which Sir Clifford Allbutt in a delightful essay has so well described.

No physician to-day who has the best interests of his patient at heart would for a moment think of summoning a surgeon to operate for appendicitis, let us say, unless he felt sure that the surgeon was as familiar with the diseases of this organ and their clinical manifestations as he himself, nor would he expect to be called upon to indicate by a mark on the skin where the affected organ lay or to be asked what to do with it when exposed; yet this continues to be the relationship between the neurologist and the surgeon, particularly in the case of brain tumours. It all goes to show that, if we are to regard these intracranial lesions as things mechanical which demand mechanical or operative treatment, those who are to be called upon to undertake their conduct must have fitted themselves, through preparation in the neurological clinic and laboratory, to look upon these maladies from the same point of view and with the same understanding, if possible, as the neurologist. In other words, it will benefit the specialty if certain members of the future school of neurology will perfect themselves in these matters of handicraft, so that they may be able to conduct their own operations—measures, it may be added, which require a special training, apart from that which the surgeon himself usually receives at the present day.

It is a common experience to find that the number of individuals afflicted with a given malady appears to increase as soon as particular interest is paid to it, especially if coupled with this active interest some reasonable hope of therapeutic benefit can be held out; and during the past year the number of patients with brain tumour admitted to the Johns Hopkins Hospital—a general hospital with a service unlike that of the London institution in Queen-square devoted exclusively to nervous diseases—has equalled that of the preceding 20 years, so that in Professor Halsted's clinic, with which I am associated, the percentage has increased in the past few months to four in every 100 admissions.

A fortunate combination of circumstances has given my assistant, Dr. George J. Heuer, and myself the privilege of seeing most of these cases at first hand, the larger number of them, it may be added, being sent directly to us by ophthalmologists, who have been the first to appreciate, through the accidental discovery of a neuro-retinal lesion, the possible presence of a growth, and who have come to learn that vision may oftentimes be saved through a comparatively simple operation. It has consequently become incumbent upon us to make the primary clinical study of these patients, with the necessary acquirement of some facility not only in recognising the tumour symptom-complex but in making a regional diagnosis as well. We have, furthermore, had the privilege granted us by the pathological department of making our own studies, not only of the tissues removed at operation but of the nervous system itself, in case of an operative fatality or in case death has occurred after the variable interval of relief brought about by such palliative measures as are adapted to unlocalisable, irremoveable, or inaccessible growths. These opportunities have enabled us to make certain observations of value from a purely surgical point of view, so that in a number of instances a precocious diagnosis, followed by a successful operation, has been possible at a period of the disease when otherwise these unfortunates might have been given over to therapeutic procrastination.

During the past ten months we have operated upon 64 cases of brain tumour, and such statistics as I shall present are based in large part upon our experiences with this recent group of patients. Inasmuch as they have been treated upon similar lines and under like operative conditions they are consequently more significant than any possible compilation of reported cases subjected to operation at various hands under variable conditions.

CLINICAL MANIFESTATIONS OF TUMOUR.

[The usual distinction was drawn here by the lecturer between the pressure phenomena due to the general increase of cerebral tension, which may occur irrespective of the situation and nature of the lesion, and the localising manifestations themselves, emphasis being laid on the fact that tumours may exist for years in the absence of one or both of these groups of symptoms and may even be an unexpected post-mortem finding. Though pressure symptoms are, as a rule, to be expected, they are more likely to be absent or indefinite than to appear "full-blown" in their text-book form. We may encounter (1) patients with tumours giving none of the supposedly characteristic symptoms; (2) patients with tumours producing pressure symptoms alone without focal symptoms; (3) patients with tumours producing focal symptoms alone without pressure symptoms; and (4) (what is ultimately to be expected in all) patients with tumours giving both general and focal symptoms. Tumours are often of years' duration before this final stage is reached; so that diagnoses of dementia, hysteria, psychoneurosis, migraine, headache from eye-strain, dyspepsia or nephritis, and what not, are made in the attempt to explain the vague symptomatic disturbances which may occur during the stage of an intracranial growth antecedent to the onset of those symptoms on whose presence the diagnosis is usually made. Only one of the so-called cardinal pressure symptoms—namely, the choked disc—lends itself readily to experimental investigation. This has shown it to be largely if not entirely a mechanical affair, attributable to increased tension of the intracranial fluids. Hence it is a natural conjecture that the other more subjective processes, such as headache, nausea, and vomiting, are due to the same or an allied cause. The lecturer continued:—]

Choked disc is the most important, as well as the most interesting of all the general pressure phenomena, for the discovery of which we are indebted to what Helmholtz termed his

[1] The lecture, the manuscript of which did not reach our hands until some time after its delivery, was copiously illustrated by lantern slides, in the absence of which it does not lend itself to publication in full. The lecturer at the outset commented on the frequent occurrence of intracranial tumours and the ease with which they may be overlooked, failure to recognise them in their early stages being one of the commonest of diagnostic errors. Neurological maladies in general are shunned by many physicians and more surgeons owing to their presumed obscurity and therapeutic hopelessness.

"optical toy," the invaluable ophthalmoscope. This instrument in its electrical form should be in the hands of every neurologist and neurological surgeon, for with this device no especial skill is needed in bringing the retina clearly into view in any surroundings, so that an ophthalmoscopic examination becomes as simple a routine as that of estimating the pupillary reflexes.

There has arisen an unfortunate terminology in regard to the retinal lesions accompanying tumour, largely due to the assertion of von Leber that the process is an inflammatory or toxic affair. Through acceptance of his views the terms "optic neuritis" and "papillitis" became firmly established, particularly in England, whence they were transported to our own.

A further confusion has arisen owing to the custom of referring to the earlier stages of the process as a "neuritis" and of reserving the term choked disc for a later period when a measurable swelling of the papilla has occurred. If these conditions are to be regarded as stages of one and the same process, which they unquestionably are, it would seem advisable to reserve one term to indicate the entire process from its early stage of engorgement to the terminal atrophy. "Papillœdema" has recently been proposed as suitable for this purpose, though it does not seem to possess any distinct advantage over the well-established designation of choked disc; and the late Marcus Gunn has suggested "tumour papillitis" with the full recognition that the process is a progressive one throughout, whatever may be its underlying cause. This term, however, not only indicates again an inflammatory lesion but one which is restricted to tumours, whereas we know that lesions which are in every way indistinguishable from the choked disc of tumour occur in common with increased intracranial pressure due to other agencies.

Recent observations, both experimental and clinical, have served to swing the pendulum back to the original views of von Graefe, Schmidt-Rimpler, and Manz, that the process, after all, is largely a mechanical one. Some arguments in favour of these views may be briefly summarised.[2] 1. It has been possible in the canine to reproduce the early stages of a choked disc by the introduction of fluid under pressure into the subdural space. This fluid, finding its way into the sheath of Schwalbe, leads to venous stasis and to the characteristic neuro-retinal œdema. 2. Provided a choked disc has not progressed to one of the later stages in which there is extensive new tissue formation due to the organisation of hæmorrhages and exudates, its rapid subsidence can usually be assured by the mere relief from pressure afforded by a decompression operation—a measure which is now daily serving as a means of preserving vision for many of these unfortunates, even though the growth itself remains untouched. It is notable, furthermore, that the swelling subsides more rapidly in the eye homolateral to the decompression owing to the greater relief from pressure on this side, even though it be the side occupied by the tumour. 3. The routine daily examination with the electric ophthalmoscope of patients after such cranial injuries as basal fractures has shown that a choked disc in the so-called stage of "optic neuritis" is of frequent occurrence, due in all probability to the cerebral œdema which follows concussion or contusion. The neuro-retinal swelling in these cases, together with the other existing pressure symptoms, usually subsides promptly after the establishment of a suitable subtemporal opening in the cranium. It may be mentioned, further, that we have evidence in support of Byrom Bramwell's view that "albuminuric retinitis" so-called may be in large part dependent upon a similar cerebral œdema. It may indeed be difficult or impossible to distinguish this condition from the choked disc of tumour, the latter often showing hæmorrhages and exudates exactly comparable to those supposed to typify the changes that accompany nephritis.

In addition to the familiar triad of headache, vomiting, and choked disc, with certain other general pressure manifestations of less moment, such as vertigo, dizziness, convulsions, and the like, there occurs in most cases of tumour a further sign to which I desire to call particular attention, for it seems to be one of the earliest and most reliable indications of an increase in intracranial pressure.

Dyschromatopsia.—In affiliation with Dr. James Bordley, it has been customary with us in the study of the eyes of these patients to test the visual acuity and to plot the fields for form and colour, in addition to the usual observations upon retina, pupil, movement, and so on.[3] It was an early experience to find the existence in many cases of an inversion, or a tendency towards inversion (interlacing) of the colour fields, a process which almost invariably affects the blue more than the other colours.

In agreement with Charcot and his school, this condition has been commonly regarded as one of the most characteristic signs of hysteria, and we were inclined to believe at first that in our patients it was merely an evidence of some functional disturbance superimposed on the organic lesion, the presence of which we were often able to demonstrate. However, as we began to see the tumour cases at an earlier and earlier stage, the majority of the patients betraying no neurotic tendency whatsoever, we came to regard the dyschromatopsia as definitely characteristic of the pressure of tumour—so characteristic, indeed, that we have become somewhat sceptical of the diagnosis "hysteria" when based upon these long-recognised alterations in the colour fields, particularly in view of the fact that a large percentage of our patients ultimately showing a typical brain tumour symptom-complex have at one time or another in the course of their disease been considered hysterical.

The dyschromatopsia, it may be added, bears no apparent relation in these cases to the degree of choked disc, and in a number of instances the characteristic distortion of the colour fields has actually been demonstrated before the ophthalmoscope disclosed the presence of the expected neuro-retinal changes. We have, indeed, come to place so much confidence in this phenomenon as an early indication of increased intracranial tension that in a few cases we have ventured to operate at a stage before choked disc has occurred, and in two instances at least the successful extirpation of a small tumour at an early date has been due to our growing faith in the reliability of this sign. The probable relation of these alterations in the colour fields to intracranial tension is indicated by the rapid return to the normal configuration of their boundaries after relief from pressure has been afforded by the usual palliative operation. It seems to be a more delicate gauge of tension even than choked disc.

Varying grades of dyschromatopsia may be associated with or may precede an accompanying contraction of the field for form. Thus, as is often the case with other of the signs of general pressure, these colour changes may possess at times a certain localising value. For example, with an intact form field we have observed in a number of instances a half-loss of the colour fields (hemiachromatopsia), which foretold a subsequent total hemianopsia. But even in these cases more or less complete inversion has been present in the half-fields of retained colour vision.

We have endeavoured to eliminate every source of error in making these observations, and should they be corroborated by others the phenomenon may prove valuable as an early sign of tumour, for if we are to look forward to more frequent operations upon these cases, the earlier, within reason, they are undertaken the greater will be the likelihood of their successful termination either as palliative or radical measures.

[*The general pressure effects.*—Here followed a discussion of the ways in which pressure effects are transmitted—through circulatory stasis, through the intermediation of the cerebro-spinal fluid, and through dislocation and change of position of the cerebral or cerebellar hemispheres. External evidence of the intracranial stasis is often as apparent through distension of the veins of the scalp and of the eyelids as it is in the retinal vessels. The part played by the cerebro-spinal fluid is highly important, and the occurrence of a secondary hydrocephalus from ventricular obstruction may often elicit the first symptoms of pressure which consequently may be relatively sudden in onset. Many of our therapeutic measures hinge on the principle of cerebral dislocation. The brain under tension tends to protrude through any opening in the skull, whether made purposefully for decompression or whether normally present, as in the case of the foramen magnum. The herniation which occurs through this normal opening makes a lumbar puncture hazardous, particularly in cases of cerebellar tumour. Herniæ occur also through the minute openings for the arachnoidal villi, as pointed out by Wolbach.

The local pressure effects.—Illustrations were given of personal experiences with tumour localisation, emphasis being laid on the difficulties which arise in connexion with cases of long standing, owing to distant symptoms. A number of the most successful extirpations have been in cases operated upon at an early stage when symptoms were not entirely conclusive as to localisation—cases in which delay until the symptoms became more definite would probably have

[2] Observations on Choked Disc., &c., The Journal of the American Medical Association, 1909, vol. lii., p. 353.

[3] Alterations in the Colour Fields in Cases of Brain Tumour, Archives of Ophthalmology, 1909, vol. xxxiii., p. 451.

resulted in the disclosure of a growth which could not have been removed in its entirety.

Comment was made in particular upon tumours of the pituitary body, not only in regard to their characteristic neighbourhood symptoms but also in regard to the symptoms which are thought to be due to involvement of the glandular portion of the hypophysis (pars anterior). Certain experimental observations on the partial removal of this portion of the gland have made it seem probable that the condition described by Fröhlich, from Frankl-Hochwart's clinic—namely, adiposity with sexual infantilism—is due to a deficiency of this portion of the gland (hypopituitarism). A successful case of partial removal of an hypertrophied pars anterior from a patient with acromegaly, with an apparent subsidence of certain of the symptoms of overgrowth, lends further support to the view advanced by others that the syndrome of Marie is probably brought about by a condition of over-activity of this part of the gland.]

PATHOLOGICAL ANATOMY.

The clinical diagnosis of a new growth often presents great difficulties, for both the general and local symptoms may be closely simulated by a formidable array of lesions; by vascular disease—thrombosis, embolism, aneurysm, and even apoplexy; by cerebral œdemas of one sort or another, especially those of nephritis, which in rare cases may actually give definite focal symptoms; by certain chronic inflammations, such as those of ependymal origin leading to the occlusion of some one of the foramina of outlet for the cerebro-spinal fluid; and lastly, by certain conditions in which a careful necropsy may fail to reveal any lesion whatsoever, though the antemortem symptoms, general and focal, were indistinguishable from those of a new growth—the group of so-called pseudo-tumours. These latter conditions are doubtless in many cases due to cerebro-spinal fluid disturbances—an œdema or serous meningitis—the presence of which may easily elude post-mortem notice, though often clearly apparent when the cranial chamber is opened during life. The difficulties, however, do not end with the clinical diagnosis: they follow us to the laboratory, where the gross and microscopical dissimilarity of the growths, even those which from a cellular standpoint are evidently allied lesions, makes a satisfactory terminology sometimes impossible.

We have had the good fortune to enlist in our studies the interest of Dr. F. B. Mallory, of Boston, the acknowledged authority on the cyto-diagnosis of tumours, and Dr. Charles J. Lambert, of the Pathological Institute of Ward's Island, who has made some illuminating investigations on the development of gliomata, and they have kindly corrected or confirmed our anatomical diagnoses. The tissues from 72 cases during the past few years have become available to us either through operation or necropsy, and have been subjected to this rigid examination, with the following result. There have been 47 gliomas (11 of them cysts either demonstrated to be, or presumably, of gliomatous origin and 2 gliopsammomas). There have been 5 endotheliomas, 1 sarcoma (metastatic), 3 carcinomas (metastatic), 3 primary epithelial tumours, 3 syphilomas, 4 tuberculomas, 1 dermoid cyst, 1 angioma, 1 osteochondroma, 1 osteoma, and 1 unclassified tumour (a papillomatous growth of the choroid plexus). In addition there have been 5 hypophyseal tumours (1 teratoma, 1 tuberculoma, and 3 adenomas). It was somewhat of a surprise to learn that 47, or 65·2 per cent., of these tumours were actually gliomata or gliomatous cysts. Many of these in the past would certainly have been classified under sarcoma, of which there has been but a single instance in our series, if we are to make a separate group of the benign endotheliomas. As Dr. Mallory has demonstrated, a clean-cut differentiation between a glioma and a sarcoma can at times only be assured by special stains of absolutely fresh tissues or, as Lambert has pointed out, by the examination of sections taken through the entire growth, for the histological diagnosis must hinge either on the demonstration of fibrils, the preservation of which may entail the immediate fixation of fragments of tissue in a fresh state only to be obtained by surgical removal or upon an elaborate study of the topographical arrangement of the cells disclosed by large sections. Many of our tumours which in the past would have been regarded as sarcomatous prove to be gliomata in which a large part of the growth is occupied by undifferentiated cells, there being only a few isolated areas where the characteristic glial fibrillæ are to be found. Furthermore, many of these gliomata do not assume the characteristic invasive form supposed to typify growths of glial origin, but are oftentimes definitely encapsulated. Contrary to our preconceived notion, therefore, they not infrequently lend themselves, as do the endothelial tumours of the meninges, to a simple enucleation. Many of them also tend to undergo degenerative metamorphosis, to become cystic or necrosed; an additional factor in favour of an early palliative operation, which may prolong life by warding off serious pressure symptoms and thus allow a greater time for some such process to occur.

OPERATIVE METHODS AND RESULTS.

There have been under my personal observation during the past six years 130 cases of tumour or presumed tumour, of which number 109 were subjected to operation or to repeated operations. Nearly one-half of this entire series—that is, 64 cases—have been seen and operated upon, as I have said, by Dr. Heuer and myself during the past ten months; and it is particularly with reference to this latter group of cases treated on fairly definite principles that I wish to give operative statistics. There have been 84 operations on these 64 cases, whether for palliation, exploration, or tumour removal. A palliative subtemporal decompression has often preceded a deliberate search for the lesion and occasionally more than one such exploration has been necessary before the growth has been found.

Radical extirpations.—The lesion has been ultimately disclosed and the attempt made to remove a solid tumour or to evacuate and permanently drain a simple cyst in 23 cases (34·3 per cent.). Three of these operations were for large tumours, and were almost immediately fatal; three patients have subsequently died, one from a cerebral thrombosis, one from the continuance of a partially removed epithelial growth, and the third from a recurrence of symptoms due to a distant cerebral metastasis as shown post mortem. There remain 16 patients (25 per cent.) who have recovered with more or less complete restoration of function, which will probably be permanent in most of them. Fortunately, in several instances the lesion was disclosed in a relatively silent or mute area, so that no post-operative palsies whatsoever are left as tell-tales of the operation. It is for this reason that extirpations of cerebellar tumours are in the long run so much more satisfactory than when tumours are removed from important areas of the cerebrum, damage to which by the growth itself or during its surgical removal is apt to leave the patient more or less defective.

Palliative operations.—In 41 of the 64 cases (63·4 per cent.) the operation amounted either to a simple premeditated decompression (subtemporal or suboccipital) for unlocalisable or inaccessible tumours, or to an exploratory craniotomy combined with a decompression in case the expected lesion was not disclosed, or, if so, proved obviously too extensive for removal. Of these 41 cases death was immediately consequent upon the cranial operation or an associated lumbar puncture in five instances; 15 of the patients lived on for variable periods, some with considerable, others with but little if any improvement, until death supervened; 21 are still living, with symptoms in complete abeyance or so far alleviated that most of them have been able to resume their occupations and thus to earn a livelihood. A number of this latter group will in the course of time doubtless come to a radical operation in case localising symptoms supervene which will justify the attempt.

Thus, in the 84 operations on these 64 patients—and needless to say we do not include a two-stage performance as a double operation—there have been eight fatalities directly attributable to the surgical procedure (an operative mortality of 9·5 per cent.). There have been no infections or wound complications whatsoever. 16 cases after removal and 21 cases after decompression are, to be conservative, greatly benefited and a number of them probably cured, making a percentage of 57·8 out of the 64 patients that have regained, temporarily at least, a full measure of health.

Clinical statistics of this sort, based upon a single year's work, are, of course, not final, for doubtless a number of these patients may be enjoying a mere temporary palliation of symptoms and may require further operative measures in the future. Still, the total subsidence of all pressure phenomena after a successful decompression can always give hope of their final disappearance, for many tumours are slow-growing, and were it not for the usual pressure symptoms which they elicit might persist for years without jeopardising vision or life. The possibility, furthermore, always remains that the decompressive defect may give permanent relief, either by furnishing sufficient room for the progress of a slowly-growing tumour or by allowing time for degenerative processes to occur in tumours which tend to

undergo these changes. A number of our older decompression cases remain alive and well at the present time, some of them six or eight years since their operation.

In view of our relative inexperience in this little-trodden field of surgery these figures are encouraging; and I doubt not that those from sources such as the National Hospital at Queen-square would be even more so were they available. The statistics from some clinics, however, are distinctly less favourable. Thus in his recent monograph Oppenheim records 27 operations performed by skilful hands on selected cases during the course of three years, with only 2 patients regarded as cured, 1 improved, and 6 much improved, whereas nearly one-half of them succumbed to shock, hæmorrhage, or other operative complications. He expressed the feeling that only 3 per cent. of all cases are surgically favourable, subtentorial lesions being regarded—contrary to our own experience—as particularly unsuited for operation.

In our recent series of 64 patients, all subjected to operation whether the condition seemed promising or otherwise, the eight surgical fatalities represent a direct loss through operation of 12·5 per cent. This, however, does not allow for the fact that of the 84 operations on these 64 cases the final procedure was undertaken in a number of instances as a desperate terminal measure when, at the end of a long period of improvement following a simple decompression, localising symptoms had become sufficiently definite to justify the attempt to disclose and remove the growth. It may be added, too, that several of these eight fatalities were the immediate consequence of a lumbar puncture with continous withdrawal of fluid during the operation in order to lessen the extreme tension which was present, and thus to permit of a more thorough exploration.

There are three more or less routine surgical procedures to which I wish to call attention: the first, a simple palliative measure—the so-called *subtemporal decompression*. It became known, through the earlier explorations for tumour, that the mere opening of the cranial chamber, though ineffectual from the standpoint of tumour removal, often gave symptomatic relief in an unlooked-for degree. Sir Victor Horsley in this country, and others in America, called attention to this fact some years ago, and the purposeful establishment of a defect in cranium and dura for the relief of pressure has gradually become accepted as an operation of undoubted therapeutic value. There are many ways of conducting it, good and bad.

In view of the principles both of dislocation and of herniation that I have mentioned, the brain will naturally protrude through the defect thus made, and the protruding area will consequently lose, from œdema and rupture of fibres, a large part of its physiological activity. Hence it is wise to make the opening over as "silent" an area of the cortex as possible. With this object in view Saenger favours the right parietal region, but a defect in this situation abandons the protruding portion of the brain to the protection of scalp alone, and in case of great tension separation of the recent wound may occur, with the dreaded fungus cerebri—a complication, I think, which by proper precautions can always be avoided. Even in the absence of this complication the protrusion, under these circumstances, may become enormous and most unsightly. It being desirable, therefore, to have a more secure protection for the hernia, the subtentorial region has been hit upon as the most favourable site, and it has now proved satisfactory in a long series of cases. The defect thus established overlies a "silent" area, and with due practice the opening can be made sufficiently ample to check the pressure symptoms of most cases.

With experience and proper tools this measure becomes, for a cranial operation, a comparatively simple one. After separating the fibres of the temporal muscle through a vertical incision the muscle on each side is freed from all attachments below the temporal crest by means of a periosteal elevator. The relatively thin underlying bone is entered with a burr and then rongeured away so as to leave a 5 or 6 centimetres defect, through which the dura may be freely opened. In case the exposed membrane should be so tense as to threaten injury to pia-arachnoid with cortical rupture as a result of opening it, the risk attendant upon a lumbar puncture may have to be taken. The withdrawal of fluid will usually lessen the tension sufficiently to enable the stellate incisions to be made to the margins of the bone defect without injury to the brain. The overlying soft parts are then carefully closed in four layers—muscle, fascia, galea, and skin. With due precautions the resulting deformity is unobtrusive and usually affords complete subjective relief from pressure symptoms with a rapid subsidence of the choked disc, though it may occasionally be necessary to make a corresponding opening on the opposite side. The measure is not adapted to subtentorial lesions nor to cases complicated by an internal hydrocephalus.

All told, we have had something over 120 decompressions of this kind, not only for tumour, but for the pressure disturbances of cerebral œdema due to other causes—traumatic, nephritic, and so on—and it has become a routine measure of the greatest practical value. It rarely confines the patient for more than a few days and does not require shaving of more than a small area of the head, which is easily concealed, particularly in women.

The second procedure is the *deliberate exploration for a growth* which can be localised with reasonable definiteness and which promises to be one that may be removeable. Here the opening must be made directly over the lesion—an undesirable situation for the simple decompressive measure, as the cerebral dislocation will sometimes lead to hæmorrhage or unusual œdema into the region of the growth and thus greatly increase the pre-existing tension. There are various methods of making the necessary exposure, it being our opinion, contrary to that which is held by authorities in this country, that an osteoplastic flap should be turned down and the bone replaced if possible. If the growth prove to be one which cannot be removed, so that the operator must withdraw, leaving the measure solely as a palliative one, the defect for purposes of decompression can then be made from inside out at the site of election under the temporal muscle while the osteoplastic flap is still reflected. In this way a bony protection for the hemisphere can be preserved with the usual subtemporal defect. This *combined exploration and decompression* has proved of great value in a number of difficult cases.

Cerebellar operations, the third of the routine procedures of which I wish to speak, are most satisfactorily made with a symmetrical exposure of both cerebellar hemispheres, necessitating a wide reflection of the suboccipital soft parts. The operation is an elaborate, tedious, and difficult one, but nevertheless the results have been even more favourable than in the case of the operations through the vault for cerebral growths. We prefer to conduct the operation through what has been called a "crossbow" incision, as wide an area of bone as possible being removed so as to expose dura from mastoid to mastoid and from lateral sinuses downward, including the posterior half of the foramen magnum, for here, owing to the inevitable foraminal hernia from the crowding of medulla and cerebellum into the spinal canal, is the actual seat of war. The dura should be opened near the foramen, the chief effort being made to get below the wedged lips of the cerebellum, so as to ensure at the earliest possible moment an escape of cerebro-spinal fluid. This, I think, is often the crucial step of the operation, for if a primary dural incision is made over the tense cerebellar hemispheres the rapid protrusion through the opening leads to rupture of the cortex, to bleeding, and to operative confusion at the outset.

The early escape of fluid, which can be thus secured in most instances, is followed by an immediate settling back of the tense cerebellum, which not only lessens the risk of medullary compression during subsequent manipulations but permits a wide opening of the dura and the subsequent satisfactory exploration for the lesion and its treatment in case it can be brought into view. A wide bilateral opening of this kind is desirable not only for this reason of giving early free access to the fluid confined in the basilar cysternæ, but also to allow for subsequent dislocation outward of the one hemisphere, while the recesses of the other are being explored for the growth. The wounds in all of the cases have been closed without drainage, and with the exception of an early case in which there was a pressure slough from a stiff bandage, healing has invariably been without complication.

I have had, all told, 35 of these suboccipital operations, a number of them naturally resulting in simple decompression in case the lesion was not found or in case it proved to be of such a sort that its removal was out of the question. In these 35 cases there have been 4 deaths, one of them my first operation for a cerebello-pontine tumour which resulted fatally from a post-operative pneumonia owing to the fact

that we did not at that time possess a table with shoulder-supports to ensure free breathing in a face-down position. A second case died from hæmorrhage during the manipulation of what proved to be an exceedingly vascular tumour arising from the region of the corpora quadrigemina and giving cerebellar symptoms. A third promptly succumbed, with a temperature of 108° F., the necropsy showing a condition of status lymphaticus. The fourth patient, a child, was long thought to have simple idiopathic hydrocephalus and had been treated on this basis for a number of years. The operation disclosed a gliomatous cyst, but as one of its walls showed evidence of a layer of remaining gliomatous tissue an attempt, which proved too venturesome, was made to extirpate it, and death occurred a few hours after the operation.

In 14 of these 35 suboccipital operations the tumour was not found, and the procedure was abandoned as a simple decompression with the usual degree of palliation. (Two of the patients have been subsequently operated upon; a cyst was found and evacuated in one case and in the other a solid tumour removed.) In 15 of the cases (42·7 per cent.) the tumour was disclosed at the first operation; of these, in 4 the lesion proved to be a more or less encapsulated intracerebellar tumour which was extirpated; in 6 a cyst was evacuated or a portion of its wall removed; 4 were benign, extracerebellar, lateral-recess endotheliomata, which were wholly or partially removed; 1 was an occipital osteoma with cerebellar symptoms; in 2 the lesion was considered irremoveable, and there was little, if any, post-operative improvement.

Thus, in this group of 35 cerebellar operations there have been four operative fatalities (11·4 per cent.), 13 successful extirpations or cyst evacuations (37·1 per cent.), 14 operations abandoned as decompressions (40 per cent.) with complete abeyance of symptoms in many instances, and two cases (5·7 per cent.) in which practically no betterment occurred. In view of the fact that cerebellar tumours are regarded by many as particularly unfavourable for operation these figures are encouraging, and we may hope for a still better showing in the future when surgical treatment will be instituted at an earlier period of the disease. Even with our recent improvement in this respect the fact that 12 of these 35 patients were blind, or nearly so, at the time of operation shows how dilatory we still are in these matters.

In closing I may be permitted a word of admonition. Intracranial surgery from a technical standpoint is unlike all other forms of surgery in that the delicate structures involved cannot be handled with sponge and clamp and ligature as can the tissues of the body with which the surgeon is more familiar. It is far easier to do harm than good by the rough and rapid operative measures so commonly employed. Familiarity with special methods of manipulating a brain under tension, of controlling hæmorrhage from the cerebral substance without insult to the tissues, of avoiding operative injury to the pia-arachnoid until actual extirpation is attempted, and countless other details which should be mastered first by operations upon the brain of animals are essential to success in this work.

Difficult though it may often be, the craniotomy itself is the least important element in the operation; and though our surgical text-books for the most part dwell solely upon the methods to be employed in entering the cranial chamber, the vital elements are what may happen to the contents of the chamber while we are making the entry and how they are to be handled when the opening has been made.

Earlier diagnoses and more prompt interference, a wider experience in overcoming the technical difficulties of these cases, coupled with the courage to work slowly and painstakingly, these things will lead to increasingly better results in this responsible work, the success of which depends so greatly upon detail, patience, and the expenditure of time.

THE NATIONAL ANTI-VIVISECTION HOSPITAL.—At a special meeting of the board of management of the National Anti-Vivisection Hospital, Battersea General Hospital, held on Friday, Dec. 31st, 1909, to consider the comments of the coroner and juries' verdicts at the late inquests held at the Battersea coroner's court on Tuesday, Dec. 28th, 1909, it was decided that a statement should be issued by the board after its next monthly meeting to be held on Thursday, Jan. 6th.

SOME CASES OF CONGENITAL INTESTINAL OBSTRUCTION.*

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THE following cases were collected by the writer with the idea of embodying them in a thesis on the subject. Upon looking up the literature, however, it was found that a recent paper by Mr. H. J. Clogg[1] deals with the same subject, and covers the ground fairly completely. This paper has been freely utilised below. The following seven cases, two of which came under the notice of the writer clinically, were, however, thought to be worth recording.

CASE 1. *Septum in ileum.*—The patient, who was admitted into Guy's Hospital under Mr. Charters J. Symonds in March, 1905, was an ill-nourished child 5 days old. There had been continuous vomiting since birth. One motion was said to have been passed; this was described as not greenish and as slimy, and was therefore probably only mucus. Progressive distension of the abdomen had been present, and was well marked on admission to hospital. The finger could be passed through the anus, but experienced some resistance in the rectum. However, firm pressure enabled nearly the whole length of the little finger to be inserted and the tip of this could be felt through the abdominal wall in the left inguinal region. Small soap, saline, and glycerine enemata were tried, but were at once returned. A catheter was passed per rectum, but could be got up no higher than the finger. No trace of meconium was seen either in the returned enemata or on the finger. Congenital intestinal obstruction above the rectum was diagnosed, and it was decided to explore, though extremely faint hopes of recovery were entertained. Upon the abdomen being opened very distended coils of intestine were discovered, and then bowel was found to end blindly in a large cul-de-sac. This was brought out through the abdominal wall, fixed with a few stitches, and then drained with a small Paul's tube. Much dark-looking matter at once came away. Very little chloroform was administered, but the child was suffering from severe shock at the end of the operation. This could not be concluded as quickly as desired, as some difficulty was experienced in replacing into the abdomen the coils of very distended bowel. In spite of the vigorous exhibition of stimulants, and the infusion of saline, the child died eight hours afterwards.

At the necropsy a complete septum was found across the ileum a few inches above the ileo-cæcal valve. This septum was covered by mucous membrane on either side. No trace was found of any peritoneal adhesions. All the small and large intestine below the obstruction was contracted and very small, being of about the diameter of a goose-quill

FIG. 1.

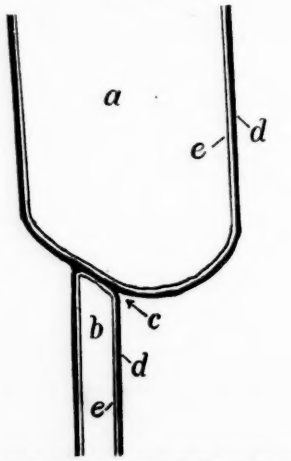


Diagram to show relative sizes of the bowel above and below the obstruction in Cases 1 and 2. *a*, Bowel above obstruction. *b*, Bowel below obstruction. *c*, Septum obstructing bowel. *d*, Muscular coat of bowel. *e*, Mucous coat of bowel.

The rectum appeared normal as far as the finger had been passed up, but the sigmoid above this was of the same calibre as the rest of the contracted large intestine. No meconium was present below the obstruction. No other congenital defect was found.

CASE 2. *Atresia of ileum.*—An infant, aged one day, was admitted to Guy's Hospital under Sir (then Mr.) Henry Howse in November, 1900. The report of this case is very scanty, so that memory alone has to be relied on for some of the details. There had been vomiting since birth, and no motion had been passed. A finger was inserted per rectum, and it was believed that "a fibrous mass" or obstruction of some sort could be felt 1 inch up the bowel. This was "partially broken down," to use the words of the report. It was considered possible that the gut might have been ruptured. The next day, as vomiting of slimy green

* A paper read before the Shropshire and Mid-Wales Branch of the British Medical Association at Shrewsbury. (The superior figures in the article refer to the bibliography printed at the end of the paper).

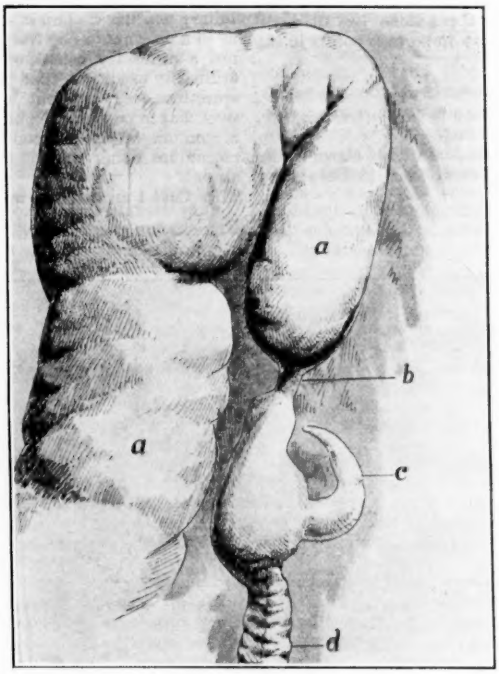
material continued, the abdomen was explored and the colon was "found to be undeveloped." A distended coil of small intestine was therefore fixed in the wound and opened. The child did well at first but later sank and died ten days after the operation.

At the necropsy there was some purulent peritonitis though not generalised. The small intestine was found to end in a blind cul-de-sac 29 inches below the pylorus. The enterostomy wound was an inch or two above this. All the intestine below the obstruction is described as being of the thickness of a clay-pipe stem. There was no communication whatever between the distended and collapsed part, though the latter was pervious right up to the obstruction. There was no trace of any old peritoneal adhesion over the site of the obstruction. There was no other congenital abnormality, except that the foramen ovale was found to be widely patent.

CASE 3. *Atresia of ileum.*—An infant, aged 4 days, was admitted into the Hospital for Sick Children, Great Ormond-street, on April 1st, 1906, under Mr. T. H. Kellock. There had been continuous vomiting, both after food and also when no food had been given, since birth. The ejected matter had been brown and very offensive for the last 24 hours. The abdomen was distended on admission. Laparotomy was performed and the distended coils of small intestine were traced down to an obstruction in the ileum. The bowel was drained with a Paul's tube, but the child died soon after.

Post mortem the bowels were very distended and so injected as to appear almost black. The ileum came suddenly to an end three-quarters of an inch above the cæcum. A short fibrous band about a quarter of an inch long connected the blind end with the bowel below. The bowel above the obstruction was filled with gas and meconium, and the large intestine below also is said to have had a little meconium in it. The mesentery at its attachment to the bowel was filled with blood. The large intestine was apparently normal in structure. At the point of stricture there was a break in the peritoneal covering of the bowel which was not continued over the fibrous connecting band.

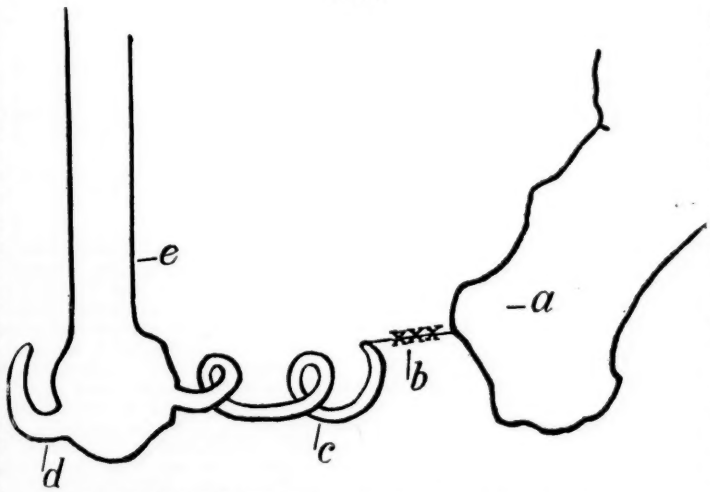
FIG. 2.



Case 3. *a*, Dilated lower ileum. *b*, Fibrous band at seat of obstruction. *c*, Appendix. *d*, Colon.

CASE 4. *Atresia of ileum with loss of continuity of bowel.*—An infant, aged 4 days, was admitted to the Hospital for Sick Children, Great Ormond-street, under Mr. F. J. Steward, on Oct. 3rd, 1904. There had been no motion since birth, and there was continuous vomiting of black-looking material. The anal canal would admit the tip of the little finger, and was found to end blindly about three-quarters of an inch up. Above this a protruding rounded, rather hard mass could be felt, which bulged downwards when the child cried. This mass was explored with a trocar and cannula without result. An incision was also made backwards from the anus without finding the rectum. Later this incision was enlarged, and after considerable difficulty and the loss of much blood an open end of the bowel was found and stitched to the margin of the wound. This bowel contained no meconium, and was contracted, so that it was very difficult to stitch. The infant died in five hours.

FIG. 3.



Case 4. *a*, Dilated bowel above break. *b*, Absence of bowel, free edge of mesentery. *c*, Contracted ileum below break. *d*, Vermiform appendix. *e*, Ascending colon.

At the post-mortem examination 7 ounces of blood were found in the peritoneal cavity. 39 inches below the pylorus the bowel was found to end in a blind sac of the size of a small goose egg. Lying coiled up on the inner side of the cæcum was what looked like an extra appendix 6 inches long. This proved to be the lower end of the small intestine, which was completely separated from the distended upper portion. There was no trace of any connexion between the two blind ends, the peritoneum having a free edge. The large intestine was collapsed and of small diameter and contained a little turbid mucus only.

CASE 5. *Multiple atresiæ of the jejuno-ileum.*—An infant, aged 5 days, was admitted to Great Ormond-street Hospital for Sick Children under Mr. W. Arbuthnot Lane. On admission the infant was moribund, with fæcal vomiting. This child was said to have passed seven stools, all whitish-yellow, one of them containing a little blood. The abdomen was hurriedly explored without result, and the infant died next day.

At the necropsy the bowel was found to be cut up into divisions, with intervals containing a thickened free edge of mesentery in place of the gut. The first break was 10 inches below the pylorus and 2 inches long; then came 3 inches of bowel followed by a half inch gap; and to this succeeded 6 inches of gut followed by yet another break. In other parts the bowel was very much constricted without being quite absent, so that there were different degrees of development present. The interesting specimen from this case, as also that from Case 3, may be seen in the Museum of the Hospital for Sick Children, Great Ormond-street. A similar case to that just related, only showing more points of constriction and occlusion, has lately been reported by Emanuel.[2]

CASE 6. *Atresia of the duodenum.*—An infant, aged 3 weeks, was admitted into Great Ormond-street Hospital on Sept. 29th, 1902, under Dr. F. E. Batten. There had been vomiting, about ten minutes after food, since birth, and also progressive wasting. The vomit was in considerable quantity, with much green mucus. The bowels had been moved, only meconium being passed. The child died on the day after admission.

On post-mortem examination the stomach was found to be much dilated, as was also the duodenum, which was found to end abruptly at the point of entrance of the bile-duct. The latter was dilated, admitting the head of a probe. The stricture was quite complete and impermeable to air and water. The stricture cut firmly and seemed to be of a fibrous nature. The stomach and duodenum were filled with green fluid, with some curds. The intestine below the obstruction was collapsed and contained dark green mucus.

It is impossible to discover for certain from the post-mortem notes of this case whether the bile-duct opened into the upper or lower segment of the bowel. Most probably it was into the upper segment, in which case we may note that the intestinal contents below are described as "dark green mucus," and the child is said to have passed "meconium." If the obstruction occurred during the latter half of fœtal life, after the development of the liver, we might expect to get bile in both the upper and the lower segments.

CASE 7. *Obstruction due to an abnormal arrangement of the mesentery.*—An infant, aged 39 hours, was admitted into the Evelina Children's Hospital on Oct. 9th, 1904, under Mr. C. H. Fagge. No normal motion had been passed, and there had been vomiting of greenish-brown material since 15 hours after birth. On admission the infant was in a very bad condition, with a distended abdomen and almost imperceptible pulse. A finger was introduced 1½ inches up the rectum, which felt normal. The abdomen was opened in the left inguinal region, and as nothing like normal large intestine could be found a coil of dilated small intestine was opened and drained with a Paul's tube. Much thick meconium escaped. The child died shortly afterwards.

Post mortem the bowel was found to have been opened near the middle of the ileum. Above the opening the gut was almost empty, but below it was distended with meconium. The mesentery was absent from the last 1½ inches of the ileum, and this and all the large intestine were retroperitoneal. At the point where the peritoneum became absent the bowel diminished in diameter from 1½ inches to ⅓rd inch. About 4 inches above the ileo-cæcal valve the small intestine had ruptured. The large intestine only contained white, soft, cheesy material. There were no signs of fœtal peritonitis, nor was any septum or valve found at the site of obstruction.

REMARKS.

The number of these cases is, of course, too small for any definite conclusions to be based on them alone, but they will serve to illustrate some of the more important points in the pathology of this condition.

Morbid Anatomy.

1. Congenital intestinal obstruction is most often *complete*, as in all the above cases except the last.

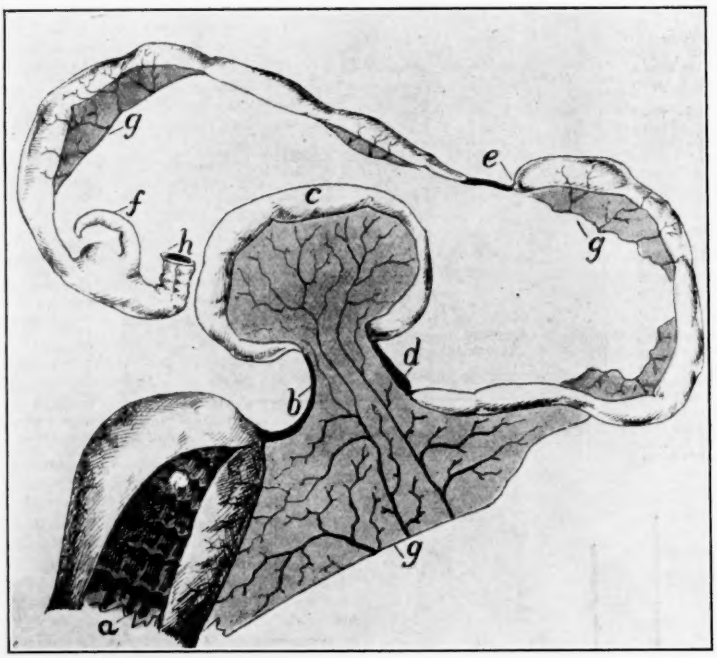
2. It is also generally *single*, as in four of the above cases. In Case 5 three atresiæ were present, and in Case 4 an imperforate anus coexisted.

3. The *position* of the break is most often in the lower ileum. The next site in order of frequency is by the biliary papilla. These points are well illustrated above.

4. The *obstruction itself* may be: (*a*) in the form of a septum, often obliquely placed, as in Cases 1 and 2. Such a septum is generally covered by mucous membrane on each side, and the circular muscular coat of the bowel has been shown to be prolonged into it.[3] This point is of some interest as such septa have been regarded by some as simply hypertrophied valvulæ conniventes, which contain no muscular fibres. (*b*) More rarely there is a longer or shorter fibrous band connecting the ends of the bowel at the site of the obstruction, as in Case 3. In such a connecting band glands and muscular tissue have been demonstrated,[4] giving some indication of the origin of the band. Also very rarely such a band has been found to be canalised. (*c*) As a further stage of separation the ends of the bowel may have no connexion at all, and may even be found in different parts of the abdomen; or they may be connected only by the free edge of the mesentery as in Case 4.

5. *Condition of the bowel above and below the obstruction.*—The outstanding and most important feature of these cases, both pathologically and surgically, is the very contracted condition of the bowel below the obstruction. Above the latter the gut is, of course, much dilated, as it is in acquired forms of obstruction, but the intestine below is in no way comparable to the collapsed bowel seen below an acquired obstruction, as it is not merely collapsed but firmly contracted up, never having functionated. Thus we find it described as being of "the thickness of a clay pipe stem" or as "worm-like bowel." The latter term perhaps best describes its appearance.

FIG. 4.



Case 5. *a*, Dilated ileum cut open. *b*, First break in continuity of bowel. *c*, Contracted bowel. *d*, Second break. *e*, Third break. *f*, Appendix. *g*, Cut edge of mesentery. *h*, Contracted colon.

The *content* of this contracted bowel is a little mucus, very thick and tenacious, so that considerable force is required to move it on. It is doubtful whether the natural forces are ever sufficient for this purpose, even if the obstruction be removed by operation. Sometimes the content of the bowel more nearly resembles normal meconium, even when no bile has ever reached that part of the intestine. Quite frequently normal meconium is said to have been passed, as in Emanuel's case, already quoted,[5] where five blocks existed. Again, in those rarer cases where a block exists *above* the biliary papilla, we find it stated that meconium was vomited, as in a case quoted by Galton.[6] It thus appears that bile is not a necessary constituent of meconium, as that term is ordinarily used, but that the intestinal, or even the gastric, secretions may present a similar appearance. Rolleston[7] says that in congenital obliteration of the bile-ducts normal meconium is passed soon after birth. Foster[8] speaks of meconium being found in the body when the liver is absent.

In Case 1 an attempt was made at the post-mortem examination to dilate up some of the contracted bowel; and it was found that this could be done by water pressure, the gut then assuming an almost normal appearance. The personal view of the writer is therefore that in many cases the walls of the so-called undeveloped bowel are approximately normal in structure, and that the gut is suffering more from want of distension than from want of development. Rarely the walls of the bowel above the obstruction are said to be thickened.[9] This we should not expect, the bowel having never been functionally active. In some cases there is a real defect of development, apart from the obstruction itself, as in certain parts of the bowel in Case 5.

The intestine *above* the obstruction is, as we should expect, filled with meconium, usually of a very dark colour, sometimes from hæmorrhage into it. Also hæmorrhage into the stomach has often been reported in these cases, and may account for some instances of so-called bilious vomiting. Hæmorrhage into the mesentery has also been observed.

6. *The peritoneum.*—In most cases this is apparently normal, even over the constricted part. In Case 7 the chief deformity appears to have been in the mesentery, there being no real occlusion of the bowel anywhere. No other case has, to my knowledge, been recorded like this. Pearce Gould[10] records a case in which the bowel was filled with some white material definitely stated to be mucus, which was apparently the sole cause of the obstruction. The writer has come across the reports of two other cases very similar to this, and has seen a third, so that it is evident that rarely the inspissated mucus alone is sufficient to cause a block in the intestine with fatal result.

7. *Other congenital defects* are generally absent. In Case 2 the foramen ovale was found widely patent at death (at the age of 12 days). In Case 4 an imperforate anus coexisted.

Etiology.

There are two main views: (1) the developmenqal and (2) the inflammatory.

1. The developmental view was put forward by Meckel [11] and developed and popularised by Bland-Sutton,[12] who holds that occlusion of the alimentary tract always occurs at the site of an "embryological event." An imperforate rectum results from the proctodæal invagination failing to reach the hind gut. An imperforate pharynx can be similarly explained, and by an excess of closure where the liver is formed as an outgrowth from the primitive intestine an imperforate duodenum may result. An imperforate ileum similarly indicates an excess of closure at the place of attachment of Meckel's diverticulum.

The following facts support this view: (1) the commonest situations of such obstructions agree with it; (2) in one case reported a duodenal septum was almost certainly due to a kind of hypertrophy of the biliary papilla;[13] (3) three specimens were exhibited years ago at the Pathological Society by Hudson [14] showing various stages of narrowing of the bowel, all at the situation of the attachment of Meckel's diverticulum; (4) this deformity is most often single; (5) the peritoneum generally appears normal; and (6) similar obstructions in the rectum and pharynx are, by common consent, of congenital origin.

2. According to the *inflammatory view* of the production of this deformity, the obstruction is caused by adhesions or cicatricial contractions following fœtal peritonitis. This view was ably supported by Theremin [15] who published an exhaustive article on the subject in 1877 and collected practically all the then recorded cases. In favour of this view may be urged: 1. Fœtal peritonitis undoubtedly occurs and the fœtus may recover from it and the peritoneum show very little sign. Fœtal ascites has been found associated with non-development of the large bowel. Adhesions in adults often disappear almost completely, and probably do so in children and fœtuses more readily still. 2. The obstruction may not be in the situation of an "embryological event" of Bland-Sutton. Thus in seven cases of duodenal obstruction collected by Perry and Shaw[16] only three were by the biliary papilla. Case 5, with three distinct blocks obviously cannot be accounted for by the developmental view as described above. Also a specimen has been shown with two distinct septa in the middle of the jejunum.[17] With regard to the alleged fœtal peritonitis, we may note that it is practically never possible to find signs of syphilis in these cases, and that other evidence of peritonitis, besides the lesion, is generally wanting. It may be, also, that the obstruction was the cause of the slight signs of localised peritonitis found in some cases, and not the effect, as has generally been assumed.

Other views are held as to the causation of this lesion.

3. A fœtal *volvulus*, or even a simple *twist*, sometimes causes a stricture. Specimens of fœtal volvuli have twice been shown at the Pathological Society,[18] and more often have been found in young infants.[19] These volvuli are sometimes formed at the place of attachment of a tag of omentum or of a persistent Meckel's diverticulum. The formation of a volvulus may account for a large loop of gut being missing—i.e., it has been cut off by the strangulating process. A volvulus caused by a persistent diverticulum is, of course, developmental in origin, so we come round again to Bland-Sutton's view. In looking at the specimen of Case 3, in which a short band intervenes between the ends of the gut, the most natural explanation seems to be that the bowel has been twisted at this point. Another fœtal accident is that a loop of bowel may get strangled, and perhaps cut off in one of the hernial orifices, as in one of Clogg's cases. Emanuel explains his case, with many atresiæ, as being due to partial volvuli, and Case 3 may possibly be explained the same way.

4. *Other causes*, or supposed causes, of this condition are—intussusception, contraction from ulceration, embolism or thrombosis of the mesenteric vessels, and enlarged valvulæ conniventes.

In *summing up* the etiology of this condition we may state with certainty that no one theory can by any stretch of the imagination be made to cover all cases, but that the majority are due to errors of development. Others are due to what we may term fœtal accidents (volvuli, torsions, or strangulations), whilst a minority are due to preceding peritoneal inflammation. Turning to the seven cases reported above, 1 and 2 support the developmental theory, and in Case 3 an accidental twist seems to have occurred. Case 4, in which a length of the bowel is missing, may be due to either a volvulus or an excess of closure of the vitelline duct. Case 5 may be due to volvuli, Case 6 is uncertain, and, finally, in Case 7 the trouble appears to have been due to deficient development of the mesentery. Of the above cases, therefore, three are almost certainly developmental in origin, four are probably so, and all quite possibly, whilst none bear any irrefutable evidence of an antecedent peritonitis.

Diagnosis.

In most cases the cause of the obstruction has not been diagnosed. Firstly, it should be ascertained whether there is any obstruction about the anus or rectum. In one of the above cases an imperforate rectum coexisted with the atresia higher up, and in another the resistance in the rectum, due to undilated bowel, suggested obstruction there and caused a day's delay in operating. The rectum having been proved to be normal, or at least not obstructed, there should be no great difficulty in coming to the conclusion that the obstruction must be due to some congenital deformity higher up.

The excessive rarity of these cases is a great hindrance to their early diagnosis. The series of cases on which the papers alluded to here were based, were collected during many years from the enormous clinical material at large foundling hospitals abroad. Thus Theremin [20] says that there were 9 cases in 150,000 post-mortem examinations in such a hospital at St. Petersburg, and there were only 2 in 11,000 necropsies in a Vienna foundling hospital. Cordes [21] collected 57 cases of occlusion of the duodenum alone, and as this is not the most frequent situation it is probable that if a systematic post-mortem inspection of newborn and stillborn infants were made in England many more similar cases would soon be reported in this country. With the above figures before us the average practitioner may perhaps be excused for failing to recognise the nature of such a case if he does happen to come across it.

Vomiting is usually the most marked feature and is present from birth. In those cases in which the child lives long enough the vomit becomes very offensive. Sometimes it is described as black, probably owing to admixture with blood. The significance of so-called bilious vomiting has already been alluded to.

Constipation is usually absolute, though not always, as the lower bowel may empty itself of its contents. The motion is generally thick mucus, perhaps tinged with brown or green. If the obstruction is above the biliary papilla, normal meconium may be passed and the gastric symptoms are more prominent. Also when the obstruction is below the biliary papilla, the motions have sometimes been described as meconium though then generally consisting entirely of intestinal secretion. The non-appearance of normal meconium after repeated enemata would be a strong point in favour of some congenital obstruction.

Abdominal distension develops in the course of the first day or two.

All these symptoms may be greatly modified if the obstruction is only partial, but this is very much more rarely the case.

Congenital hypertrophic stenosis of the pylorus has of late been much brought before the notice of the profession, and might possibly simulate obstruction lower down. In the former the symptoms are not so severe and do not usually develop till the second or third week. Sometimes, also, the hypertrophied pylorus can be felt through the abdominal walls.

Presumably *any form of acquired obstruction*—i.e., intussusception, volvulus, internal hernia, &c.—may occur within a day or two of birth. Judging from the reports of a considerable number of cases of obstruction in young infants which I have looked through, such an accident at such an age would be even rarer than the congenital obstruction with which we are dealing.

Prognosis.

The prognosis is absolutely bad. In such a condition no hope can be entertained apart from surgical interference, and as yet no case of recovery after operation has been recorded. Letoux [22] in 1903 stated that 32 operations for this condition were on record, and since then many more must have taken place. Entero-anastomosis for this condition has been recorded six times (Clogg). Had any such case recovered it would almost certainly have been published.

Treatment.

In the face of the above facts it will be a matter of opinion whether or not any operative procedures should be undertaken. Probably, if the unfortunate infant happens to be born in an institution, or in connexion with some maternity charity, where surgical help is readily available, it will be subjected to operation, whilst if it is not thus situated it will be allowed to die untampered with. If operation is decided upon, to give the child its only possible chance, two lines of treatment are open: (1) to perform enterostomy above the obstruction and so drain the distended bowel, as was done in Cases 1 and 2; and (2) to do some kind of entero-anastomosis, so connecting up the intestine above with that below the obstruction. The difficulties of this procedure are exceedingly great on account of the contracted state of the bowel below, but it is the operation of choice if the infant is seen when in good condition. Clogg suggests that an attempt might be made at the operation to distend the contracted bowel by water pressure, and in my opinion this is worthy of trial, and would certainly offer the best chance to a child.

If the operation is only undertaken when the child is very feeble from the effects of the continued obstruction, as is generally the case, the first line of treatment—i.e., simple drainage of the distended bowel—should be undertaken as quickly as possible, perhaps with only local anæsthesia. If the obstruction is not too high up in the small intestine, so that there is a considerable absorbent surface left functionating, the infant may recover somewhat in the course of a few days, and then entero-anastomosis may be undertaken with a better chance of success. In the case of duodenal obstruction simple drainage cannot be performed and gastro-enterostomy is the only line of treatment. No case of operation for this condition has, I believe, been yet recorded, but Mr. Arbuthnot Lane has operated on such a case. Gastro-enterostomy was performed and an attempt was made to squeeze on the gastric contents through the contracted bowel below. The infant was very weak at the time of the operation and died soon afterwards.

In conclusion, I should like to express my indebtedness to the surgeons and physicians on the staff of Guy's and Great Ormond-street Hospitals for their courtesy in allowing me to use their cases.

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Shrewsbury.

ON THE NATURE AND TREATMENT OF ANGINA PECTORIS.[1]

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ON the suggestion of the energetic medical secretary of the Harveian Society I agreed to write a short paper on the Nature and Treatment of Angina Pectoris in the hope that a useful discussion might take place upon a subject which, notwithstanding the attention which has been paid to it, never seems to lose interest. This is doubtless due to the fact that angina pectoris often runs a tragically fatal course, and because, great as has been the ingenuity exercised in the endeavour to elucidate its nature, no explanation yet advanced has been accepted as fully explanatory even of cases which appear clinically to belong to the same class. The various guesses at truth in this connexion have recently been set forth with lucid brevity amd yet comprehensively by Sir Clifford Allbutt when he opened a debate on the subject at the Belfast meeting of the British Medical Association, on which occasion he also again stated his now well-known view which places the site of the chief sensory phenomena in the suprasigmoid portion of the aorta. Heberden, who so well originally described the condition, states in his commentaries that he had met with about 100 cases. Stokes of Dublin, in his classical work, affirms, on the other hand, that, excluding cases of cardiac asthma, as he terms them, with thoracic distress, he had himself never met with a single case of what he understood angina pectoris to be. So remarkable a statement by one of Stokes' experience points to the necessity of a clear conception of what we understand by the term. It is an interesting fact in connexion with this statement of Stokes that the Registrar-General's returns show a disproportionately small death-rate from angina pectoris in Ireland as compared with that occurring from the same cause in England and Scotland. If we use the term in a comprehensive sense, as including all forms of cardiac pain associated with endocardial, myocardial, and pericardial states, the affection cannot be said to be of rare occurrence. If, however, we exclude cases in which the disturbed conditions due to disease of the valves are apparently active in provoking the phenomena of angina, the number of cases of that affection met with by any single observer is not by any means so great, and Stokes, I therefore think, must have distinguished sharply between the two kinds of cases when he concluded that he had never seen one. He must have felt inclined to limit the term to those cases in which the clinician discovers little amiss with the heart on auscultation and percussion, but in which, as Heberden describes it, pain, more or less severe, may arise, it may be suddenly, and also, in some cases, prove rapidly fatal. But I do not think we can now use the term in so restricted a sense, and Heberden with his 100 cases could certainly not have done so, as the clinical diagnosis of a particular lesion, except after death, was not in his day a developed science.

Angina pectoris may, therefore, for our purpose be defined as a painful affection of the heart as a whole, dependent upon disorganisation in the anatomical character, or disorder in the physiological function of one or more of the factors in cardiac action, and associated, in some cases in a marked degree, with the fear of impending death. When I speak of the heart as a whole, and of the factors in cardiac action, I mean the cardiac musculature, innervation, blood-supply and blood-content of the organ. I am aware that in speaking thus I venture to disagree with those who suggest a single key to the solution of the problem of the nature of angina pectoris. Huchard, for example, says there is only "one angina—coronary angina." It behoves me, therefore, as briefly as possible, to endeavour to justify my contention that angina pectoris may take its origin in more ways and in more situations in the heart than one. In discussing a question which has exercised so much thought, and led to so many different conclusions, I wish to do so without dogmatism, and think I can best make the attempt to lay my own views before the society within the limits of time imposed upon me by very briefly giving, by typical cases, the data on which I base my opinion. I select them from notes of about 50 cases, observed by myself, which are conveniently at hand.

CASE 1.—A male, aged 20 years, suffered from severe attacks of pain over the heart, passing up to the right shoulder and down the right arm, being particularly felt at the tip of the right little finger. He had also frequently experienced pain of an acute and continuous character at the lower end of the sternum. He exhibited a double thrill on palpation over the second and third left rib cartilages, a double murmur of harsh character in the same situation, and a systolic bruit at the apex which was not traceable outwards to the left. The patient died, and on post-mortem examination showed gross lesions of the pulmonary arterial valves, the base of the pulmonary artery, the tricuspid valve, and the septal wall of the right auricle.

CASE 2.—A male, aged 59 years. He had complained of "wind in the stomach" and been treated for dyspepsia for some months. He had occasional attacks of severe pain in the chest, associated with aching of the right shoulder and wrist, the latter also being affected with a sense of coldness. Pain was induced by exertion. The heart was normal in position and action. Impulse was slightly increased. The kidneys were normal. He was seen on one occasion (Feb. 28th, 1905); a diagnosis of angina was made and instructions given accordingly. He died suddenly at a railway station ten days later, after a refreshing night's sleep, simple breakfast, and quiet walk to the train. There was, I understand, no necropsy.

CASE 3.—A male, aged 59 years. He had severe pain at the lower end of the sternum radiating down the left arm. There was continuous

[1] A paper read before the Harveian Society on Nov. 25th, 1909. The discussion on this paper will be found in THE LANCET of Dec. 9th, 1909, p. 1670.

pain from 8 P.M. on Jan. 22nd till 7 P.M. on Jan. 23rd, when the patient died. He was admitted collapsed to the Great Northern Central Hospital and placed in a surgical ward as a possible case of ruptured gastric ulcer. On post-mortem examination there was a partially decolourised thrombus in the right coronary artery and fatty degeneration of the heart; there were no other conditions discernible to account for the symptoms. It was stated that the patient had occasionally had attacks of angina of a less severe character prior to his last and fatal attack.

CASE 4.—A male, aged 48 years, short and stout. He had severe pain in the chest. The pain began in the left upper arm, and was compared by the patient to the sensation produced by encircling his arm with and inflating a Riva-Rocci blood pressure instrument. The pain spread to the chest. Both heart sounds were distinctly audible but not forcible. There was no bruit. The area of cardiac dulness was normal. The other organs were normal. He has improved much under treatment.

CASE 5.—A male, aged 63 years. Considering himself in good health, he had a few days of fatiguing sight-seeing in London, and experienced some pain in the chest, which he regarded as rheumatic. He retired to rest apparently well on Nov. 9th, 1901, and slept well. He had severe pain in the chest at 5 A.M. which passed off and recurred shortly afterwards. At 9 A.M. there was pain in the centre of the chest with radiation down his left arm to the hand. The pulse was not quickened, but during pain was occasionally intermittent. The duration was three minutes; then complete relief. Respiration was restrained but breathing was not otherwise disturbed. Recurrence about 15 minutes later; soon breathing was stertorous. The pulse was imperceptible, the heart sounds were inaudible, the face was cold and clammy, and tears were flowing down the cheeks, apparently from intensity of pain—a veritable agony. Respiration was irregular and slowing. Death occurred within 15 minutes of seizure. On post-mortem examination no valvular disease was found; there was slight atheroma of the aorta with early stage of the same in the coronary arteries. There was fat infiltration of the heart and fine fatty degeneration of muscle fibres revealed by osmic acid staining. The heart was in diastole and flaccid.

CASE 6.—A male, aged 53 years. He had breathlessness with attacks of pain in the chest passing down the left arm and up the left side of the head. He had suffered more or less for about seven years, the attacks becoming more frequent. The pulse ranged from 66 to 72. The heart sounds were normal. The heart's action was accelerated but regular during the attack. He died 25 minutes after the last seizure. On post-mortem examination extensive calcification of the coronary arteries was found. In the right coronary artery was an intra-vascular aneurysm. Internal to the muscular coat in the neighbourhood of the aneurysm was a well-marked nerve ganglion cluster. The valves were normal. Muscle on the whole was well preserved and merely showing some pigmentary degeneration.

CASE 7.—A male, aged 62 years, seen with Mr. T. Jago. Sudden supervention of the status anginosus. He had been affected four days when seen by me. The signs were characteristic. There was no bruit or enlargement of the heart. The arteries were corded. The attacks were provoked by effort. Some days after I had seen him the patient became insane. He died in a fortnight from the commencement of his angina. There was no necropsy. I mention this case as exhibiting the mental aberration sometimes met with in cardiac cases, and as an extension of the neural phenomena in the case itself.

CASE 8.—A male, aged 73 years. He had attacks of chest-pain of a mild character about seven years prior to death, which I regarded as angina but the patient as indigestion. I did not see him again till this year (1909), when he had been suffering from unquestionable attacks of angina for a month; the pain was of a burning character, arising at the top of the sternum and passing down the left arm. The blood pressure was 140-145. The pulse was 84, regular. There was no bruit. The aortic second sound was not accentuated. There was no œdema. The kidneys and other organs were normal. Occasionally there was some loose crepitation at the left pulmonary base. During the next fortnight the patient rested, and the attacks became milder and less frequent. He then went to stay with a relative at the sea-coast. He bore the journey well, only having a slight attack on arrival, which passed off without nitrites. He was apparently well and in good spirits next day. During the following night he had a severe attack of pain, for which a physician used atropine and morphia. He was seen by me 48 hours later, when he had no pain, but a very rapid pulse and feeble heart sounds. He died the next day. There was no necropsy.

CASE 9.—A male, aged 32 years. He had a musical diastolic aortic bruit, best heard over the third left rib cartilage. He had attacks of pain in the præcordia, passing down the left arm on its ulnar side, and so severe at times as to cause the patient, in evident agony, to grasp his left wrist tightly with his right hand. During attack the aortic bruit was almost hushed and the pulmonary second sound was accentuated, while the tension of the radial pulse was lowered. Other phenomena of aortic regurgitation were well marked. The attack was relieved by the nitrites. During a period of improved cardiac action angina was much less frequent and severe.

CASE 10.—A male, aged 19 years. There was well-marked double aortic valvular disease with cardiac over-hypertrophy. There were frequent attacks of pain in the chest, chiefly located over the upper part of the sternum. There was no radiation down the arm or to other parts of the chest. The fifth and sixth ribs were removed to lessen the pain-provoking thrust of the heart against them during systole. There was great amelioration of pain, but he still has to take nitrite of amyl occasionally to gain relief from angina.

I have given a very short abstract of these ten cases because they briefly reveal the clinical history of angina pectoris, and show that the site of referred pain varies. Peripheral manifestations may be to the right or to the left, and sometimes to both right and left. In rare instances pain may commence at the periphery; the "aura," as Walshe long ago pointed out, may begin in the arm. One of the cases also shows that dextral radiation may be associated with gross disease in the right side of the heart, just as sinistral radiation may be associated with gross disease in the left side of the heart. Endocarditic cases may be met with in the young, while degenerative cases usually affect later life. One case likewise shows that thrombosis of a coronary artery may be associated with a persistent and severe cardiac colic, much as an impacted calculus may induce a protracted and fatal hepatic or renal colic. Another case, the fifth narrated, that of the man who died after sound sleep in practically his first serious attack, instances a severe angina which I am heterodox enough to suggest was probably dependent upon a partial cramp of the cardiac musculature. Such a view would be regarded by some as quite untenable, but, believing as I do in the independent contractile power of portions of the heart, for which I likewise believe I have proof, I consider the suggestion rational. Yet another case exemplifies the supervention of a general psychical disorder on local anginous symptoms; and, finally, the last case, to which I shall refer again, throws some light on the nature of cardiac pain in connexion with compensatory hypertrophy when the latter is in excess by the modification of the signs which followed surgical alteration of the heart-containing thorax.

The conclusion I draw from these facts is, that the character and situation of the conditions which originate angina vary, and that the heart, if, like other viscera, endowed with low sensibility to handling and other modes of external irritation under normal circumstances, may, in the presence of lesion of its internal surfaces or severe stimulation of its nervous endowment by compression or otherwise, reveal evidences of sensibility as well marked as do other viscera in their interior and under circumstances which may be regarded as analogous.

Careful and painstaking as has been the examination of the cardiac nervous system, we cannot yet be said to have by any means a complete knowledge even of its anatomy. As one of the cases I have related shows, cellular nerve structures were found in a hitherto unsuspected situation, internal to the vascular muscular coat, and in the absence of a complete knowledge of the nervous anatomy of the organ it is premature to dogmatise upon its physiological properties as to the presence or absence of visceral sensibility in certain situations and under certain circumstances. For myself I believe that in all cases of pronounced angina pectoris the site of referred pain is in one or other portion of the heart itself, or, as Sir Clifford Allbutt maintains, at the cardiac end of the aorta. That the brachial aura of some cases argues that referred pain may also be in the somatic innervation of the chest wall, as Dr. Mackenzie suggests, may be admitted, but to admit this in no way invalidates the conclusion that it may also be intra-aortic, intravascular, endocardial, or inter- if not intra-muscular, for recent research has shown that some structures in the heart, while themselves innervated, may in portions be regarded as of mixed neural and muscular nature. In the last case which I have quoted and which I purpose showing you this evening when speaking of the treatment of cardiac pain, the persistence of post-sternal angina, notwithstanding the division of the fifth and sixth intercostal nerves and the removal of intercostal muscles, supports, I think, my contention that visceral nerves may evince sensibility as well as somatic nerves. Peripheral vascular spasm as a preliminary or primary event in the history of the attack in angina pectoris is, I believe, rare. As a secondary and aggravating event it may occur, as also may a condition of vascular laxity due to inhibited ventricular systole, the consequence, as I believe, of pneumo-gastric shock.

The treatment of angina pectoris refers to the treatment (1) of the attack and (2) of the condition. The treatment of the attack of angina pectoris may consist in the relief as rapidly as possible of a painful affection of greater or less severity, the subsidence of which without untoward accident we may anticipate almost with certainty, or it may involve a grim struggle of progressive intensity between the physician and death, in which the latter may prove the victor within a very few minutes. Tragedies of this description are rarely encountered in the endocarditic series. They are usually met with when the ordinary physical examination of the heart reveals little or nothing amiss. The attack of angina in valvular disease (which is usually aortic) is rapidly relieved as a rule by the nitrites, even when it recurs with frequency. The nitrites, indeed, merely hasten the relief which is sure to follow the rescuing acceleration of the heart's action which succeeds the primary inhibition caused by the shock of cardiac pain. The attack in non-valvular angina may require, on the other hand, a quick recourse to morphia and

atropin, or to a general anæsthetic to avert a rapidly fatal issue, which even then may, and frequently does, ensue. I agree with Sir Clifford Allbutt in considering the cause of death in angina pectoris to be the inhibition of cardiac action by the shock of pain. The heart may rapidly cease to beat and die in diastole; or death may be postponed somewhat longer, the heart passing into a feeble tachycardia, very suggestive of the fibrillary tremor, noticed as the last phase in the cardiac action of animals killed experimentally by intensive or repeated electrical shocks.

The immediate danger passed, the treatment of the anginous condition or of the conditions underlying the supervention of angina has to be considered. It is scarcely necessary to insist upon the avoidance, so far as possible, of those forms of physical exertion or mental emotion which are found to provoke attacks, or upon that care in diet and in the securing of easy evacuation which is likewise indicated. The iodides and mercurials which have proved beneficial in some instances may do so without reference to old specific infection, but where it is possible to determine such with any probability or certainty treatment on these lines is the more indicated. Now that we possess in the Wassermann reaction with the patient's blood serum a fairly reliable means of determining the point with some assurance it is well to use it. Recently I found this test positive in a case of some years' standing which shows no valvular disease and a very moderate rise of blood pressure. The patient was infected 20 years ago and was not specifically treated. He is now under treatment for specific disease.

The angina of valvular disease, which is, as I have mentioned, usually associated with aortic valvular lesion, frequently occurs during periods of defective compensation when we are not dealing with a hypermyotic heart. In such circumstances we observe the attacks to subside as cardiac action becomes more efficient. In this series I believe, with Sir Lauder Brunton, that the blood content of the organ plays a part. The treatment, therefore, of this condition of comparative cardiac failure on recognised lines is that indicated during periods of greater anginous distress. In the case of the hypermyotic heart, when anginous symptoms supervene, tend to increase, and to become persistent, further measures may be justifiable. But the data for forming an opinion as to the treatment of the condition by thoracostomy, the measure to which I refer, are, so far as I am aware, only to be found at present in the history of the case which was operated upon by my colleague, Mr. E. C. Stabb, on my suggestion, in May, 1908, and which I present to you this evening, 18 months afterwards. Full particulars of his previous condition and the details of the operation, as also of the relief afforded, may be found in THE LANCET of July 4th, 1908, and a further report upon this case appeared in THE LANCET of Nov. 20th, 1909. The patient still has attacks of post-sternal angina, for which he inhales nitrite of amyl, but the diminished frequency and lessened severity of the attacks since the liberated heart has pulsated against a yielding, non-stimulating "cage," to use the felicitous expression employed by Sir Clifford Allbutt, is unquestionable. Under similar circumstances I should have no hesitation in again advising the same surgical procedure.

Upper Berkeley-street, W.

MOSQUITOES WITH REFERENCE TO IMMIGRATION AND HORSE SICKNESS,

AND NOTES ON THE DESTRUCTION OF THEIR LARVÆ BY FISH IN THE SUDAN.

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ON returning from leave in September, 1909, I met at Port Sudan the engineer in charge of the new bridge works at Goz-Abu-Guma, a malarious spot on the White Nile about 240 miles south of Khartoum. He informed me that the bridge piles, and more especially the scaffolding, had resulted in a great accumulation of sudd, the floating vegetable matter consisting of papyrus, *vossia* grass, reeds, *pistia*, &c., which drifts down stream from the great swamp regions, and usually ends its voyage by becoming anchored to the sedgy bank. Under ordinary conditions fragments of sudd begin to appear shortly after passing Dueim on the southward journey—i.e., about 120 miles from Khartoum. He further told me that in consequence of this blocking of the current mosquitoes were exceedingly numerous, and had rendered life almost unbearable. On learning this I at once predicted that in all probability the river steamers would be bringing large numbers of adult insects into Khartoum. As a rule this is not the case. The *imagines* which have boarded them far to the south usually quit the steamers, leaving, however, a legacy of eggs, larvæ, and pupæ in their bilges which nowadays the engineers in charge generally render harmless for mischief before the boats arrive at their destination. I soon found that this very natural prophecy was correct and that the mosquito brigade in Khartoum had its hands full. No sooner did a steamer with its barges tie up and the hatches were removed than a black cloud of mosquitoes emerged and sought breeding places ashore. The majority proved to be Stegomyia calopus, but Culex fatigans was common and, of graver import, Pyretophorus costalis was likewise a visitor. Probably other species have also invaded the town, for a nyssorhynchus—a genus of anopheline not hitherto recorded in the Sudan—was taken by Mr. King. But this was not all. I learned that steamers coming in from the Blue Nile were infected in the same way, and on inquiry found that there had been a great river spill in the neighbourhood of Rufaa about 90 miles from the capital, and that the country there resembled a huge swamp.

The contrast between these two conditions producing mosquito immigration is, I think, interesting—the one artificial and due to engineering activity, the other natural and apparently unavoidable. It may be said at once that every effort was made to cope with this invasion, steamers being met on arrival and fumigated with sulphur, but if the condition persists it will be necessary to obtain a portable Clayton apparatus, for it is no easy matter to deal with wood holds, &c., by ordinary methods such as sulphur squibs. Many water collections in the town have become infected, but, so far as is known, the efforts of the brigade have prevented any larvæ or pupæ hatching out. Its resources, however, have been taxed to the uttermost, and this state of things shows the necessity for constant and continuous labour in everything pertaining to mosquito reduction. Happily, although Khartoum had been very free from culicidæ for a long time the brigade had not been abandoned or reduced in numbers, and thus it was possible to attack the winged hosts in full strength and with unabated vigour. Had this not been so the results of several years' work would have been speedily nullified. As it is, no case of locally acquired malaria has, so far, been notified.

An interesting fact, however, is that a small epidemic of horse sickness (dikkop or blue-tongue) broke out in Khartoum. The disease was prevalent up the Blue Nile, and one is led to ask if the invasion by mosquitoes was in any way associated with the outbreak of this disease. Nothing definite is known regarding the etiology of the latter, but the work of Theiler, Pitchford, and others goes to show that some insect, and probably a mosquito, is the carrier of the virus. The said virus is of the kind termed ultra-visible, as is the virus of yellow fever. We know that the latter is conveyed by Stegomyia calopus, and here in Khartoum we have seen an invasion of the town by this mosquito which has been brought to the city by steamers coming from regions where horse sickness is at present epidemic and is usually endemic. It may be a mere coincidence, it has been impossible to carry out any experimental work on the subject, but it is possibly somewhat suggestive and seems worth recording if only to ascertain if any similar concatenation of circumstances has been noted.

Another point, however, to which I wish to direct attention is the investigation now proceeding in the Sudan as regards the utility of fish as destroyers of mosquitoes in their water stages. A zealous and interested official some time ago suggested the introduction of the small "millions" fish Girardinus poecilioides from Barbadoes to cope with larvæ in swamps, irrigation channels, large pools, and like collections of water. The question was referred to me and I found myself opposed to the idea, partly because I knew the difficulty of transporting these fish and the possibility that they might not take kindly to new surroundings, partly because, like the proud Syrian of old, I was tempted to reply, "Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel?" In other words, one

was of opinion that there was no use going outside for what might very well be obtained at home. I know that Captain Flower, director of the Zoological Gardens in Cairo, employed young "bulti" (Tilapia nilotica) in the tanks at the aquarium of Gezira and found them most efficient in keeping the water free from mosquito larvæ, and it was reasonable to suppose that many Nile fish were effective, especially as it is found that when fish are present in any pool left by the falling river mosquitoes do not breed out therein.

There were two points, however, requiring attention. If any water collection is stocked with fish these are apt to be speedily cleared out by natives or birds, such as kingfishers, which are very plentiful. Moreover, as is explained later, fish which attain any size are not suitable for use on irrigated land. Hence it was desirable to find a small and greedy fish which would offer no temptation to the native, which could be used in irrigation channels, and which, though not immune from the depredations of fish-loving birds, yet was so prolific or could be used in such numbers as to make these ravages of little account. The type of fish desired was that known in India as the chilwa, Chula argentea, which is said to be more efficient than "millions," as not only does it devour the larvæ, but, being a surface-feeder and an eager fly-taker, it is deadly to the adult mosquito, especially to the female intent on egg-laying.

Mr. Harold King, our entomologist, was going up the White Nile in the Floating Laboratory on a voyage of discovery and I asked him to take every opportunity of studying the question. Mr. King is an excellent field naturalist and admirably fitted to carry out such an investigation. His report, which I append, will be found of interest and value, and it would appear that in Cyprinodon dispar we have obtained the fish we require. This, as Mr. King remarks, remains to be proved, but the following letter, kindly sent me by the acting manager, Sudan Plantations Syndicate, in whose irrigation channels the fish are being tested, is at least promising:—

DEAR SIR,—In reply to your favour of the 19th inst. I have examined the small canal into which the fish have been introduced.

The canal is about 30 metres long and about half a metre deep, and the opening to the larger canal is closed with gauze wire netting to keep other fish out. Although the still water is now lying 25 days there are no signs of mosquito larvæ.

The fish are alive and seem to feed on flies on the surface of the water and are most active in the early morning.—Yours faithfully,

ALEX. MACINTYRE.

Like Mr. King, I have fed Ophiocephalus obscurus (*vide infra*) on the larvæ of Pyretophorus costalis and noted how the latter were devoured before they reached the bottom of the jar. The following is Mr. King's report:—

While on the White Nile, between the dates of April 17th and July 19th, I carried out some investigations with Nile fish with a view to ascertaining what species, if any, were likely to be of value in controlling mosquitoes by feeding on their larvæ. In most of the swamps where mosquito larvæ abounded shoals of small fish of various species also occurred, but from the fact that the two throve together it was evident that the fish were not likely to be of very much use. Numbers of these fish were captured, placed in jars, and offered mosquito larvæ, but with one exception they refused them until they had passed one or more days without food. The exception was a fish found in a khor between Gebel Ahmed Aga and the river. In this khor very few mosquito larvæ could be found—a search of nearly two hours resulted in less than a dozen specimens being taken—but there were present numbers of the young fry which has been identified by Mr. G. Boulenger of the British Museum as Ophiocephalus obscurus.

This fish feeds greedily on mosquito larvæ, thrives well in captivity and in stagnant water, and appears to be an ideal fish for the purpose for which it is wanted, except in one respect—viz., size. When full-grown it attains a length of 35 cms. As fry, inhabiting shallow waters, such as are found in swamps and river spills, this fish would no doubt prove of value, for it is in just such places that mosquitoes breed. On the other hand, though the fish would flourish in large irrigation canals and the fry could reach the smaller gadwals on irrigated land, the latter are frequently so constructed that the young fish, on increasing in size, could not regain the parent canals and would perish. Hence this species of fish is not likely to be an economical means of dealing with mosquito larvæ in such situations.

Some thirty specimens of O. obscurus are still living in a jar in the laboratories.

During May I met Mr. Butler, Superintendent of Game Preservation, who told me of a small fish—Cyprinodon dispar—which lives in Khor Arbat, about twenty-two miles from Port Sudan. He very kindly furnished me with some notes on its habits, and recommended that it should be given a trial, as it appeared to him to be likely to give good results. He further said that while no mosquitoes are noticeable in the vicinity of that khor they are plentiful near other similar khors where C. dispar does not exist.

Accordingly, on Sept. 6th, I left for Khor Arbat, and having spent three days there returned to Khartoum on Sept. 12th. There were myriads of the fish in the khor, but at first I had considerable difficulty in persuading them to live in captivity. Eventually I found that while if placed in jars nearly full of water most of them died within twelve hours, yet if given only about two inches of water over a layer of sand they could be transported fairly easily. One hundred and one living specimens reached Khartoum and were there offered mosquito larvæ which they took readily. This, however, is not conclusive proof that C. dispar feeds on mosquito larvæ in its wild state as the specimens had been unfed for two days when the larvæ were given them, none being obtainable at Khor Arbat.

As these fish did not thrive in jars I wrote to Mr. MacIntyre, acting manager of the estate at Zeidab, belonging to the Sudan Plantation Syndicate, Ltd., asking him if he would allow them to be placed in a gadwal on the Company's estate for purposes of experiment. This he readily agreed to, so on Sept. 19th I took those that were still alive—about seventy in number—to Zeidab and the following morning liberated them in a short length of gadwal, which Mr. MacIntyre very kindly had filled with water. This gadwal is not used at present for agricultural purposes, and the pipe connecting it with the canal has been netted to prevent other fish gaining access. This was done in order that the C. dispar might be given every chance of establishing themselves before being subjected to the possible ravages of other and larger fish.

The specimens liberated at Zeidab were all immature, as it was found that partially grown fish withstood captivity better than did adults.

When full grown C. dispar attains a length of 8 cms., and in all stages appears to prefer shallow water.

Should the gadwal in which these fish were liberated remain free from mosquito larvæ during the coming year, while similar gadwals in the immediate vicinity serve as breeding places for these pests, I think sufficient proof of their value will have been obtained to justify an effort being made on a larger scale to establish C. dispar throughout all the gadwals on the Sudan Plantation Syndicate Ltd.'s estate and on other similar farms where great difficulty is experienced in controlling mosquitoes.

Attached is the account of Cyprinodon dispar given by Boulenger in his monumental work on "The Fishes of the Nile":—

This species has not actually been found in fresh water in any part of the Nile Basin, but as it seems to be widely distributed along both coasts of the Red Sea, in tidal pools and at the mouth of the rivers, and as it is known to occur in hot springs in Arabia and Persia and in fresh water in Cutch, it will probably be found in inland waters in Egypt in the neighbourhood of the Red Sea. It is included here on this supposition.

C. dispar is very closely allied to, and difficult to distinguish from, C. fasciatus, but it grows to a larger size, it has only 9 to 10 rays in the dorsal fin, and 10 or 11 in the anal, and the caudal fin, which is truncate, is marked in the male with two or three crescentic black bands; the dark and light crossbars on the body, which are more or less distinct in the female, are replaced in the adult male by numerous round light (in life blue) spots. 16 to 20 teeth in each jaw. 26 to 28 scales in the lateral line, 22 or 24 round the body. Grows to a length of 80 millimetres.

In describing this species, Rüppell observed that it is found all round the Red Sea, in salt water, but that it occurs also in the thermal freshwater of Hadjer Elme near Tor. Mr. Lort Phillips also found it in a hot spring at Makulla, Persian Gulf, and the type specimens of C. stoliczkanus, Day, were obtained in a small nearly quite freshwater stream at the village of Joorun, in Cutch.

It would seem that this fish could be also utilised for dealing with Culex salus in the latter's aquatic stages which are passed in salt or very brackish water.

Khartoum.

RECENT RESEARCHES ON THE ANATOMY OF THE HEART.

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SOME three years ago Dr. Martin Flack and one of the writers published a paper[1] on the muscular connexions between the various parts of the heart and summed up the results of other researches which had been published at that time. In that paper a small mass of peculiar muscle and nerves was described—a mass a little bigger than a grain of wheat—which was constantly found at the termination of the superior vena cava in the right auricle and to which we gave the name of sino-auricular node. Because of its intimate connexion with nerves and the peculiar structure of its muscle fibres—similar to those of the auriculo-ventricular node described by Aschoff and Tawara at the commencement of the bundle passing from auricles to ventricles—we supposed that the sino-auricular node might prove to be the starting point of the heart's contraction.

Dr. Walter Koch,[2] working in the laboratory of Professor Aschoff, has fully verified and also extended our description of the sino-auricular node. He found also, as Keith and

[1] A. Keith and M. Flack: Journal of Anatomy and Physiology, 1907, vol. xli., p. 172. See also THE LANCET, April 11th, 1906.

[2] W. Koch: Deutsche Medicinische Wochenschrift, 1909, No. 10; Münchener Medicinische Wochenschrift, 1909, No. 46.

Flack stated, that the sino-auricular node had no special muscular connexion with the auriculo-ventricular node except through the general musculature of the auricle. Dr. Ch. Thorel[3] has reached a different conclusion; he found by serial sections of the human right auricle that these two nodes were connected by a differentiated strand of tissue. We have been unable to find such a connexion in the hearts of smaller mammals in our series of sections. We are still of opinion, not only that these nodes are devoid of a special connexion, but that they represent two quite different autogenetic systems in the heart. Professor Aschoff,[4] in a recent excellent summary of recent work on the pathological anatomy of the heart, cites the experiments by Hering, Langendorff, and Lehmann as favouring the theory that the sino-auricular node is the point of origin of the heart's contraction.

We have recently cut and examined a series of hearts of the eel, frog, tortoise, lizard, pigeon, sparrow, and of many mammals, with the view of throwing more light on the nature of the sino-auricular node of the human heart. The result of our investigations has been to show that all those areas of specialised or primitive musculature—such as have been described as nodes—are really areas where the musculature of the heart comes into an extremely intimate contact with the nervous system, that nodes are really neuro-muscular contacts. We found that those areas of the heart of the tortoise which Gaskell found to have the greatest power of originating the heart's impulse, and those of the eel which MacWilliam found were the most automatic, were areas made up of a mixture of nerve and muscle fibres. The appearances led to the belief that in these areas the nerve fibres become actually continuous with the muscle fibres, and that there are nucleated fibres which, from their structure and staining reaction, appear to be intermediate between nerve and muscle fibre. To the cardiac areas which we regard as made up of nerve and muscle fibres we propose to give the non-committal name of "nodal tissue."

The wall of the sinus venosus of the eel, in which the great veins end, is made up of nodal tissue, but this is accumulated and the nerve element is more abundant at the bases of the venous valves which mark the junction of sinus and auricle. In the frog this tissue is massed mostly in the left auricle, at the termination of the pulmonary vein, but it extends also on to the right auricle. We were able to verify the fact that the part of the left auricle (vestibule) in which the pulmonary veins end is a derivative of the sinus venosus. The nodal tissue of the frog occurs at the sino-auricular junction, but instead of being continuous round the whole extent of that junction, as in the eel, it is concentrated in one part.

As one ascends the scale of animals the concentration becomes more marked. The nodal tissue is in intimate connexion in the frog with Remak's ganglion, which it would be more convenient to name, as it really is, the sino-auricular ganglion of the heart. The condition in the tortoise and lizard is very similar to that in the frog; the nodal tissue, however, is now more directly connected with the right auricle, although, as in the frog, the chief centre of its distribution is at the termination of the pulmonary vein (vestibule) in the left auricle, where it has a close connexion with the sino-auricular (Remak's) ganglion. The nodal tissue forms almost a complete circle round the junction of sinus and auricle, its chief distribution, as already mentioned, lying at the termination of the pulmonary vein. In the bird's heart the sino-auricular tissue is not in evidence in the form in which it is present in the heart of other vertebrates. The sino-auricular node is represented by small neuro-muscular stations scattered along the sino-auricular junction. The sino-auricular ganglion, still in relationship with the vestibule of the left auricle, is also reduced in extent.

In the mammalian heart the sino-auricular nodal tissue is concentrated on the right auricle, chiefly along the sino-auricular junction and in front and on each side of the termination of the superior vena cava. In the heart of the mole this tissue is peculiarly abundant at the sites just mentioned, as Keith and Flack[5] have described. We have now found that in the lowest type of mammalian heart—that of the Monotreme Echidna[6]—the nodal tissue is abundant and peculiar; it lies superficially along the junction of sinus and auricle, especially in that part of the junction known in human anatomy as the sulcus terminalis. The tissue is seen as leashes of superficial nucleated fibres passing downwards on the surface of the auricle where they become continuous with the ordinary muscular fibres. In the hearts of rodents the nodal tissue has an extensive distribution along the sino-auricular junction, but in the higher mammals, as in man, it tends to become concentrated at the termination of the superior vena cava.

Thus it will be seen that the sino-auricular nodal tissue becomes less in amount and more concentrated in position as one passes from the lower and more automatic to the higher and less automatic type of hearts. As the animal becomes more specialised the heart loses its independence and becomes more a part of the general organisation. The nodal tissue becomes less in amount; the cerebro-spinal nerves enter into a more direct relationship with the cardiac musculature.

We come now to deal with the auriculo-ventricular nodal tissue. In the mammalian heart this tissue is represented by the reticulum or node in which the auriculo-ventricular bundle commences. On its discovery Aschoff was inclined to regard this node as the automatic centre of the heart. The node is situated in the septal wall of the right auricle near the orifice of the coronary sinus. Aschoff's original hypothesis as to the nature of the node was supported by the investigations of his pupil Dr. Walter Koch,[7] who observed that the tissue of the nodal region contracted in the dying heart when all the other parts had ceased. Professor H. E. Hering's experiments support the view that the highest automatic centre of the heart is the sino-auricular. On anatomical evidence the auriculo-ventricular node must be regarded as a lower centre.

In the evolution of the heart the nodal tissue at the auriculo-ventricular junction has, like that at the sino-auricular junction, undergone reduction and concentration. In the heart of the eel the auriculo-ventricular nodal tissue forms a complete ring. It is composed of reticulated fibres situated at the inner margin of the auriculo-ventricular orifice. It receives numerous nerve fibres from the plexus of nerves surrounding this orifice. The nodal tissue is inserted between the annular fibres of the auricular canal and the inner longitudinal fibres of the ventricle. In the frog's heart, although the ring of tissue is complete, there is evidence of concentration, for it is more abundant at certain points, and this concentration becomes more marked in the reptilian heart. In the bird's heart the auriculo-ventricular nodal tissue is reduced in amount; it is represented by scattered points situated chiefly near the base of the inter-auricular septum, where the nerves and muscle form small nodes. In the mammalian heart the ring becomes reduced to the auriculo-ventricular node at the commencement of the bundle distributed to the ventricles.

It is very probable, as Dr. James Mackenzie[8] has supposed, that in cases of continued irregularity of the heart the inception of the rhythm of the heart has been taken on by the auriculo-ventricular node, owing perhaps to a lesion of the sino-auricular node. In some of Dr. Mackenzie's cases of continued irregularity one of us found that the sino-auricular node was more isolated than normal, with signs of fibrosis, but the appearances varied in different cases, and the technique employed in their examination was too crude to allow definite inferences to be drawn.

Our investigations have made certain that the single strand of muscular communication now known as the auriculo-ventricular bundle is peculiar to the mammalian heart. In the fish, frog, and reptile this bundle is represented by the inner vertical fibres of the ventricle which issue from the auriculo-ventricular ring of nodal tissue; as the nodal tissue becomes concentrated the inner vertical fibres also become reduced until only the strand connected with the remnant of the nodal ring remains in the mammalian heart. We see in the reduction of the ring and

[3] Ch. Thorel: Münchener Medicinische Wochenschrift, 1909, p. 2195.
[4] L. Aschoff: Medizinische Klinik, 1909, Nos. 8 and 9. Professor Hering's latest results have just appeared in the Münchener Medizinischen Wochenschrift, No. 17, 1909.
[5] A. Keith and M. Flack: Journal of Anatomy and Physiology, 1907, vol. xli., p. 172.
[6] For the heart of this animal we were indebted to Professor J. P Hill. A consecutive series of excellent sections was prepared for us by Wm. Chesterman, Oxford.
[7] W. Koch: Ueber das Ultimum moriens des Menschlichen Herzens. Inaugural Dissertation, Freiburg-im-Breisgau, 1907.
[8] J. Mackenzie, Quarterly Journal of Medicine, 1907, vol. i., p. 39.

of its ventricular strand the same process at work as in the rest of the heart—viz., a reduction in the automatic power of the ventricle and its greater subjection to the central nervous system.

The condition in the bird's heart puzzled us greatly. There was no bundle to be found, although certain muscular connexions between the right auricle and ventricle were found. We hoped to get a clue to the condition in the bird's heart in that of the Echidna, but there we found a large and typical bundle with many points of resemblance to the form found in the hearts of ungulates, but we also found considerable remnants of the extensive auriculo-ventricular connexion which prevails in lower vertebrate hearts, especially round the right auriculo-ventricular orifice. One of these remnants demands mention because it throws light on the nature of the auriculo-ventricular node. In the heart of Echidna we found that this node gave off not only the bundle but also a leash of fibres which descended at once to the septal wall of the right ventricle, independently of the bundle, a connexion which we also noted in the heart of the rat. This direct connexion we regard as a remnant of the complete circle of inner ventricular fibres. On the left side of the heart of the Echidna there was an auriculo-ventricular connexion consisting of ordinary muscle fibres. In the bird's heart the muscle connexion between the auricles and ventricle is found on the lateral and mesial side of the right auriculo-ventricular orifice, but these connecting fibres are not of a markedly specialised type.

Two recent papers demand mention. Dr. E. J. Curran[9] has drawn attention to the bursa or lymphatic space that surrounds the bundle, a circumstance that leads him to infer that the bundle is passive during contraction of the heart. He traces the connexions of the auriculo-ventricular node to both auricles; our sections show that the closest connexion of the node is with the septal fibres of the left auricle and with the annular fibres of the right. Dr. R. Retzer[10] has inferred, from an investigation of developing hearts, that the auriculo-ventricular bundle is a special downgrowth of musculature of the sinus venosus within the ventricles—an interpretation with which we totally disagree. On the other hand, we think there is much to be said in favour of Dr. Retzer's hypothesis that the bundle may have much in common with the spindles of voluntary muscles, although the analogy is denied by Dr. Gordon Wilson.[11] Sherrington showed that these spindles are the points from which the sensory nerves of muscles commence—points at which coördinating impulses arise. These muscle spindles persist after section of all the nerves of a muscle; Keith and Miller have shown that the ventricular ramifications of the bundle persisted years after the bundle in the human heart had been severed by a gumma. We are of opinion that experiments will show that the bundle is not only for the conduction of impulses from auricle to ventricle, but that through the bundle the condition of the ventricle is continually affecting the condition of excitability of the auricle. The bundle appears from its nature to be not only a conducting but a coördinating mechanism.

Professor Aschoff[12] and his pupil Dr. Nagayo have shown that the transparent appearance and large size of the Purkinje (bundle) fibres of the ungulate heart is due to the presence of glycogen. Of great significance in unravelling the method in which the impulse is conducted from one chamber of the heart to another is Professor Wenckelbach's[13] discovery that a sino-ventricular rhythm may occur in the human heart, a rhythm which MacWilliam observed in the eel's heart many years ago.

One of the chief results of our investigation has been to impress upon us the necessity of studying the special musculature of the heart in its relation to the extraordinary abundant nerve-supply of that organ. The excitable regions of the heart are those where the nerves come into a specially direct connexion with the specialised tissue which we have named nodal. We have not touched on the abundant nerve-supply to the sinuses of Valsalva at the commencement of the aorta and round the auriculo-ventricular orifices which we regard as end stations for sensory reflexes. The nerve plexuses at these regions are so close that zigzag experiments could not possibly sever all the nerve connexions between auricle and ventricle. We are also of opinion that an entirely fresh description of the nerves to the heart is necessary, and that the fundamental differentiation must be into those nerves which supply the venous base or commencement of the heart (derived from the lower cervical sympathetics) and those which supply the terminal end or arterial base of the heart. It is those nerves which end in the venous base which appear to exercise the inhibitory and accelerating effects on the heart through the specialised nodal system. Dr. Martin Flack[14] has given an excellent summary of the recent literature dealing with aspect of cardiac research.

[9] E. J. Curran: Anatomischer Anzeiger, 1909, Band xxxv., p. 89.
[10] R. Retzer: Anatomical Record, 1908, vol. ii., p. 149.
[11] J. G. Wilson: Proceedings of the Royal Society, 1909, vol. lxxxi., p. 151.
[12] Nagayo: Verhandlungen der Deutschen Pathologischen Gesellschaft, 1908 (Kiel), p. 150.
[13] Wenckelbach, K. F.: Archiv Maladies du Cœur, 1908, No. 2.
[14] Flack, M.: Further Researches in Physiology. Edited by L. Hill. London, 1909.

A CASE OF SIMULTANEOUS SUPPURATIVE APPENDICITIS AND PERFORATED GASTRIC ULCER.

BY C. A. MOORE, M.S. LOND., F.R.C.S. ENG.,
SENIOR HOUSE SURGEON, BRISTOL GENERAL HOSPITAL.

THE patient, a female, aged 18 years, was sent in to hospital by Mr. J. Lewellyn of Kingswood on Oct. 17th, 1909, under the care of Mr. R. G. P. Lansdown. The previous history contained nothing of importance except that she had twice been under Mr. Lewellyn's care with symptoms of gastric ulcer, the last time six months before admission. She had also suffered from several attacks of pain and tenderness in the right iliac fossa, but not severe enough to lay her up. The present illness commenced on Oct. 16th. She had not felt well all day and had taken no solid food. At 8.30 P.M. she had a sudden attack of pain in the left side of the abdomen so severe that she fainted and was sick. The pain became less, but the sickness continued until 5.30 A.M. next day. The bowels acted after taking an aperient.

On admission at 9.30 P.M. on Oct. 17th the patient had a typical "abdominal" expression, with sunken eyes and dilated pupils. The pulse-rate was 136 and the quality poor; the temperature was 99·8° F. The abdomen moved very imperfectly, especially in the lower part, where the distension was also more marked than above. There was considerable rigidity all over, well-marked in the epigastrium, but perhaps more so in the right iliac fossa. There was nothing definite to be felt except a sense of thickening in the appendix region. There was distinct tenderness in the left loin, but none in the right, and rectal examination was negative. The right loin was dull, and the dulness did not shift. The rest of the abdomen was tympanitic, the stomach area was increased, and the liver dulness only just appreciable as a narrow zone of impaired resonance. The diagnosis lay between appendicitis and perforated gastric ulcer, and it was decided to explore the appendix first.

At 11.30 P.M., 27 hours after perforation, Mr. Lansdown operated. A small incision was made at the outer border of the right rectus. Much odourless peritoneal exudate escaped and the appendix was found covered with lymph, and swollen and congested, with a hard bulbous end. It was rapidly removed by crushing and inversion. As this could obviously not explain the whole of the symptoms a median incision was made above the umbilicus. On opening the peritoneum odourless gas in large quantity escaped, together with more fluid. A brief search revealed a perforation in the anterior wall of the stomach towards the cardiac end and nearer the lesser curvature. There was much surrounding induration, and the perforation was partially sealed by plastic lymph. It was closed with a purse-string suture and the fluid in the immediate vicinity mopped up; very little stomach contents escaped. The upper wound was closed in layers, and through the lower a cigarette-drain was passed into the pelvis. The appendix after removal was slit up, was found to contain pus, and the mucous membrane at the tip was ulcerated.

The patient bore the operation well. The Fowler position was adopted and a pint of hot saline solution was given by the rectum every four hours. The drain was removed, and

mouth-feeding commenced on the third day. Her after-progress was rapid and uneventful, and she was discharged well with the abdominal wounds sound and able to take ordinary diet on Nov. 13th.

Remarks.—The association of hæmatemesis with appendicitis and other serious abdominal lesions has been noted by many observers, especially Treves, Dieulafoy, and Lucas-Championnière. It has generally been ascribed to a toxic necrosis of the gastric mucous membrane. The present case, however, must be put in a different category, and the only one resembling it is one published by Matheson.[1] A girl, aged 19 years, with a previous history of gastric ulcer, was recovering from a severe attack of appendicitis when she was seized with severe hæmatemesis and symptoms of perforation. On account of her grave condition no operation was undertaken, and on her death a few hours later no post-mortem examination was obtained. Kelly and Hurdon[2] also quote a case of Treves, but no details are available.

One can only speculate as to the probability of connexion between the two lesions, or as to their having a common cause. It is worth remarking that the girl was not anæmic, nor had she any sign of oral or other sepsis, the teeth being good. The previous history suggests that she had undoubtedly suffered from gastric ulcer in the past, and probably also from attacks of mild catarrhal appendicitis. Inasmuch as Robson and Moynihan[3] give the mortality of cases of perforated gastric ulcer operated on from 24–36 hours after perforation as 87·5 per cent., recovery from the simultaneous presence of two such grave lesions must be regarded as most gratifying. Important factors contributing to this result were the comparative emptiness of the stomach at the time of perforation, and Mr. Lewellyn's prompt recognition of the grave condition of the patient.

I am indebted to the kindness of Mr. Lansdown for permission to publish these notes.

Remarks by Mr. LANSDOWN.—In operating upon so grave a condition as perforation of a gastric ulcer I think the following three points are of the greatest importance in contributing to a successful result: (1) speed in operating, as great as is consistent with thoroughness; (2) care in avoiding damage to the peritoneum by not using antiseptic lotions, and only swabbing up the fluid in the immediate vicinity of the perforation; and (3) the protection of the patient from exposure to chill by covering him completely with a dry sterile towel with an opening in the centre, the edges of which are fastened to the edges of the wound by towel-clips.

Bristol.

TWO CASES OF POISONING BY MASSIVE DOSES OF TRIONAL, WITH RECOVERY.

BY J. S. MACKINTOSH, M.R.C.S. ENG., L.R.C.P. LOND.

CASE 1.—The patient was a lady, aged 37 years, who, about 10 P.M., swallowed 185 grains of trional and 20 grains of veronal and also the bottles which had contained the drugs, after crushing them into powder. Seen next morning she would move her eyelids on being asked in a loud voice to open her eyes, but gave no other sign of consciousness. Her face was flushed; the eyelids were a little puffy. Pulse, respiration, and temperature were normal. There was no coldness of the extremities. The pupils were not contracted and reacted to light. Treatment consisted of washing out the stomach and then introducing a cup of strong coffee through the funnel and tube, spraying menthol into the nose, applying strong smelling-salts at short intervals of time, and injecting 1-40th grain of strychnia nitrate hypodermically. During the afternoon coma deepened and urine high in colour was passed involuntarily. The face became congested, the lips blue, and the eyelids œdematous. The strychnine injections and application of smelling-salts were continued and a draught containing 1 drachm of magnesium sulphate in solution was administered every four hours. The urine, examined by Dr. G. L. Eastes, showed only a minute trace of hæmatoporphyrin, though it was the colour of tawny port wine. Towards night the coma showed signs of passing off. During the whole of the second day the patient slept profoundly, though she could be roused to take food and medicine, the magnesium sulphate being continued four-hourly. On the third day full consciousness returned. The patient still had a bluish look about the face. There was a rise of temperature during the next three days, touching 103° F., and then gradually subsiding. The glass caused no symptoms beyond a few small scratches about the inside of the mouth, unless it contributed towards the rise of temperature. There was at no time any vomiting, rash, Cheyne-Stokes breathing, or blistering of fingers, nor were the after-effects of the severe character described as following some cases of trional poisoning, there being little in the patient's condition at the end of a week which could be ascribed to the drug itself. Dr. W. Hale White kindly saw this case with me in consultation.

CASE 2.—The patient was a lady, aged 40 years, who swallowed 125 grains of trional in tablet form. Seen 20 hours later she was lying in a semi-comatose condition but would open her eyes when addressed. Her respirations and temperature were normal, the pulse 120 but strong, and her colour a little pale but not bluish or dusky. The treatment adopted was washing out the stomach with a solution of sodium bicarbonate (1 drachm to the pint), followed by injections of strychnine, the application of smelling-salts to the nose, and the administration of magnesium sulphate, as in the first case. The patient was somewhat congested about the face during the second day, but in 48 hours from the time I first saw her the physical effects of the overdose had passed off.

Recorded cases of poisoning by the sulphonal group show that toxic symptoms from cumulative doses are much more dangerous than when poisoning results from a single large dose, a proposition borne out by the two cases just described.

Hampstead.

[1] Matheson: Brit. Med. Jour., 1901, vol. i., p. 1201.
[2] Kelly and Hurdon: The Vermiform Appendix and Its Diseases, p. 415.
[3] Robson and Moynihan: Diseases of the Stomach, p. 161.

A SIMPLE APPARATUS FOR PRODUCING RHYTHMICAL VARIATIONS IN ELECTRICAL CURRENTS.

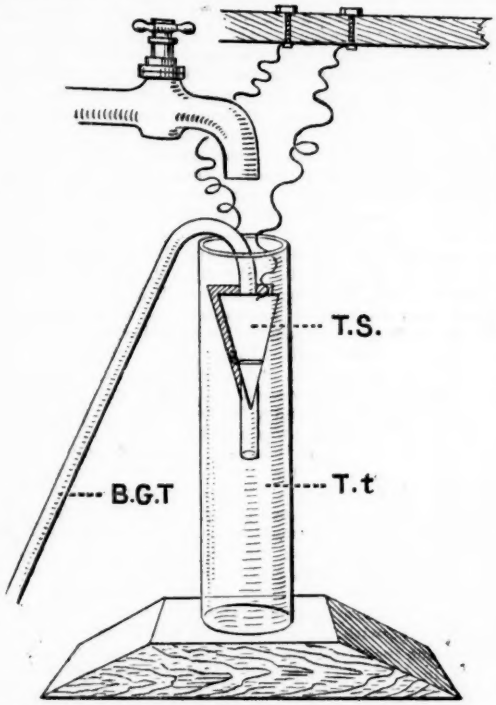
BY NORMAN E. ALDRIDGE, M.B., C.M. EDIN., D.P.H.,
MEDICAL OFFICER IN CHARGE OF THE ELECTRO-THERAPEUTICAL DEPARTMENT, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.

IN your issue of Nov. 13th, 1909, p. 1418, Dr. H. Lewis Jones, in a most interesting paper, calls the attention of electro-therapeutists to the extreme value of rhythmical variations in electrical currents. By the courtesy of Dr. Lewis Jones, I had the opportunity some months ago of seeing these currents in operation at St. Bartholomow's Hospital.

I have made, at the cost of a few pence, and have used for some months, a simple apparatus which produces rhythmical variations in battery or coil currents as efficiently as the expensive apparatus mentioned in Dr. Lewis Jones's paper, and I venture to think that its efficiency and smallness of cost may render it of interest to others.

The principle is a varying water resistance, the variations of which are produced by syphonage. The following are the component parts of the apparatus: 1. An ordinary test-tube 6 inches long with a diameter of half an inch. This stands upright in a hole cut in a block of wood. 2. A bent piece of glass tube, one arm being 5 inches in length and the other 3 inches, with a bore diameter of a quarter of an inch. 3. Two triangular-shaped pieces of thin sheet copper 2½ inches long with a base of just under half an inch. To the base of each copper strip is soldered a piece of flexible insulated wire. The strips are tied top and bottom by silk to each side of the short arm of the bent tube, small notches or holes being made in the strips for this purpose. The points of the strips reach to within a quarter of an inch of the bottom of the glass tube. The short arm of the tube with the copper strips attached is now inserted into the test-tube, care being taken that the strips do not touch one another, and the apparatus is placed under the tap. The flexible wires are carried to terminals screwed into a shelf or neighbouring piece ot wood. If the flow of the tap is carefully adjusted to a slow dribble the test-tube can be made to fill and syphon itself from 10 to 18 times a

minute with absolute regularity. One cord from the battery or coil is attached to one of the terminals mentioned, and from the other terminal a cord is carried to one of the electrodes to be used; the other electrode is attached direct to the vacant terminal of the coil or battery. The strength of the current is governed by the same means as would be employed if the water resistance were not in circuit. It will



T.S., Copper strips. T.t., Test-tube. B.G.T., Bent glass tube.

be found that the current rises from zero when the tube has syphoned, to maximum when the tube is filled. By placing a milliampèremeter in circuit I find by the deflection of the needle that the rise is regular and even, but, of course, the fall is somewhat more rapid than the rise.

I have used my apparatus with bi-polar arm baths, and with the four-celled baths with complete satisfaction, and I see no reason why it should not be equally satisfactory with a full-sized bath.

Southampton.

Medical Societies.

LIVERPOOL MEDICAL INSTITUTION.

Demonstrations of Specimens.—Solid Carbon Dioxide.—Heart-block.

A MEETING of this society was held on Dec. 16th, 1909, Mr. T. H. BICKERTON, the President, being in the chair.

Dr. J. M. HUNT showed a case of Vincent's Angina and referred to the differential diagnosis between it and diphtheria and syphilis; there were two other cases in the same family.—Dr. E. E. GLYNN demonstrated the characteristic fusiform bacilli and "spirilla" from the case, both in smears and with the dark-ground illumination.

Mr. C. THURSTAN HOLLAND demonstrated Solid Carbon Dioxide, the method of preparing it in the form of sticks from the cylinder of gas, and explained its uses for the removal of nævi, &c.

Dr. HUBERT ARMSTRONG read notes of a case of Heart-block occurring in a boy aged 5½ years. The symptoms began in July, 1909, about a week after an alleged fall upon the head. At first there were severe headache, occasional delirium, a temperature of 104° and 105° F., with pulse 48 and lower. There were no other symptoms, and the nature of this febrile attack, which lasted five days, is not clear. The patient recovered, but a fortnight later had a series of epileptiform attacks accompanied by profound syncope, and lasting over five days, on the second of which he was admitted to hospital. After admission he had eight convulsions in three days, and in the intervals there was great cerebral irritation, so much so that the case was regarded as one of meningitis until lumbar puncture revealed a normal cerebro-spinal fluid. This irritability disappeared 24 hours after the last "fit." The pulse-rate during the first ten days varied erratically between 28 and 84. It then became constant between 50 and 60 for five days, when it rose to above 100 for four days. It then fell to between 40 and 50, and has maintained the same rate to the present. Simultaneous venous and radial pulse tracings taken by Dr. John Hay during this last period showed typical dissociation of auricular and ventricular rhythms, the auricles beating about 70 when the ventricular rate was 45. The phenomenon was also demonstrated on the fluorescent screen. There have been no further epileptic fits since the third day after admission, and the child, except for a little cyanosis and that he is incapable of much exertion, at present appears quite comfortable. There is a slight mitral regurgitant murmur, but the cause of the heart-block is undetermined.

Dr. JOHN HAY read a paper on Heart-block, Complete and Partial, in which he referred to six cases of Adams-Stokes disease which had been under his supervision during the last two years. Five of these cases were of the arterio-sclerotic type; the sixth was apparently caused by a severe gonococcal infection in a young woman. The patients exhibited all the grades of severity, ranging from slight attacks of vertigo and transient blurring of consciousness with bradycardia to grave syncopal and epileptic seizures. The insidious onset of the malady was referred to, diminution in the area of cardiac response being in some instances the first disturbing feature. Records were shown demonstrating the actual transition from partial to complete block, and the return from complete to a 2 to 1 rhythm without the appearance of any subjective symptoms. The pathological findings in the disease were referred to and treatment was considered. One of the cases had been greatly benefited by potassium iodide and the gonococcal case had improved after the exhibition of a gonococcal vaccine.

The case and paper were discussed by the PRESIDENT, Dr. W. MCAFEE, Professor T. R. GLYNN, Sir JAMES BARR, Dr. J. H. ABRAM, Dr. T. R. BRADSHAW, and Dr. R. J. M. BUCHANAN, and Dr. HAY replied.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

The Conduct of Gynæcological Cœliotomy.

A MEETING of this society was held at Manchester on Dec. 17th, 1909, Dr. J. W. MARTIN (Sheffield), the President, being in the chair.

Dr. A. J. WALLACE (Liverpool) opened a discussion on Preparation and After-treatment in Cases of Gynæcological Cœliotomy. After dealing with the personal element in the patients, the importance of oral antisepsis was insisted upon. It was held that special dieting was of little value, since patients who were fed on ordinary diet up to the evening prior to operation day did just as well as those who were starved or semi-starved. In the same way special purgation was quite unnecessary, one or two free evacuations on the day before operation being considered sufficient. Skin preparation was held to be of great importance, and Dr. Wallace detailed the evolution of the method he used at the present time. The old method of scrubs and compresses was condemned, both as being unscientific and as causing the patient discomfort at a time when placidity ought to be aimed at. The guiding principles were to avoid softening of the skin, with consequent detachment of epithelium and oozing of septic materials from the skin gland ducts; it was better to harden, to "tan" the epithelial layer, and to constringe the glandular orifices; finally, the hardened surface should be rendered antiseptic. Von Herff's method of using acetone supplied the first two requisites, and the third was obtained by combining iodine with it. Dr. Wallace had the abdominal skin rubbed for several minutes with a mixture of equal parts of acetone and spirit, and then painted with a 3 per cent. solution of iodine in acetone. The results gained by this method were the best yet obtained. In special cases Döderlein's "gaudanin" was employed in addition; this gave

an absolutely aseptic surface of thin rubber. As an alternative, solutions of the various gums in acetone had been tried and found to give excellent results. In after-treatment the semi-recumbent position was advocated in all cases for the first 12 hours, because this position was associated with absence of, or greatly lessened, post-operative nausea and vomiting. The use of morphia was discussed and advocated. Unlimited water was allowed, and feeding with solid food begun on the second day. Opening of the bowels within the first 24 hours cut short pain from flatulence and permitted the patient to settle down sooner than would otherwise be the case. The duration of the stay in bed should be as short as was consistent with safety to the patient, and it was held that the majority of laparotomy cases could be allowed to get up much sooner than had hitherto been considered either possible or safe. Certain conditions had to be fulfilled before a patient could be permitted to rise from bed, amongst the most important being the existence of a desire on the part of the patient to get up. Some 46 cases of laparotomies for various gynæcological conditions had been allowed to rise from bed at periods varying from the third to the tenth days, and, with one exception, all these cases had progressed more quickly than those who had been kept on their backs for longer periods. The single exception developed a mild phlebitis on the second day after rising.

Dr. MARY H. F. IVENS (Liverpool) said that she had for some time allowed her patients to get up early, with great advantage, she thought, and no ill effects. She was opposed to the use of morphia.

Dr. W. BLAIR BELL (Liverpool) deprecated free purging before operation, as it lowered the blood pressure. He always gave atropine before an operation in order to raise the blood pressure, lessen shock, and lessen buccal and bronchial secretion. He avoided the use of morphia, but gave bromidia, in a rectal saline, to a restless patient. As regards early rising, he pointed out that animals did themselves no harm by moving about freely within a few hours of an abdominal section. He had on several occasions been very pleased with the beneficial effect of pituitary extract in cases of post-operative intestinal paresis.

Dr. A. DONALD (Manchester) always prepared the skin after the patient was anæsthetised. He avoided the use of morphia if possible, and preferred to keep the patient in bed for 14 days at least.

Dr. W. E. FOTHERGILL (Manchester) urged the importance of careful cleansing of the mouth, nose, and throat before operation. He preferred solid to liquid diet both before and, as soon as possible, after operation; when fluid was necessary it should be in the form of some preparation containing sugar, such as raisin tea. He believed that the formation of adhesions could be lessened by frequent small doses of nux vomica. He found that patients derived considerable comfort from a sandbag on the abdomen. Patients should be kept in bed for three weeks.

Dr. J. E. GEMMELL (Liverpool) gave hyoscine and atropine before operation; less anæsthetic was then required. He considered that mental and physical rest, when the patient was in pain, was best obtained by one-eighth of a grain of morphia; this might be repeated if necessary.

Dr. T. B. GRIMSDALE (Liverpool) at one time used to wash out the stomach before the patient left the operating-table. Vomiting was certainly lessened in this way, but the advantage was not sufficiently marked to warrant him in advocating this as a routine measure. He also gave morphia to relieve pain, and kept the patient in bed for three weeks.

Dr. A. W. W. LEA (Manchester) liked to have the patient in bed for at least two days before operation. He had found alum in enemata of considerable value in intestinal paresis. He gave morphia.

Dr. D. LLOYD ROBERTS (Manchester) had a rooted objection to the use of morphia. He kept patients in bed for one week, when possible, before operation and for three weeks after.

Dr. W. K. WALLS (Manchester) laid stress on the mental preparation of patients; it was of great importance to gain the patient's confidence. She should not be kept waiting in bed too long. Free preparatory purgation was likely to increase post-operative vomiting. The after comfort depended very largely on the way in which the anæsthetic was given.

Dr. H. LEITH MURRAY (Liverpool), as the result of bacteriological experiments, had shown that an iodine-spirit solution was not so strongly bactericidal as a solution of iodine in acetone.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held on Dec. 17th, 1909, Dr. J. B. Hellier, the President, being in the chair.—Mr. H. Secker Walker showed a case of Chronic Glaucoma in a woman, aged 71 years, treated in the left eye by a modified La Grange operation—i.e., excision of a wedge-shaped piece of sclerotic just above the corneal margin—and a peripheral iridectomy, which might be quite small. The result was a weak spot in the sclerotic, through which filtration might take place. The pupil remained circular.—Dr. A. G. Barrs showed a case of Banti's Disease in a woman, aged 29 years, who had two attacks of hæmatemesis occurring respectively nine months and three months ago. Ascites appeared subsequently. The spleen was greatly enlarged. The abdomen had been tapped on several occasions. Examination of the blood showed marked anæmia of the chlorotic type.—Mr. H. de C. Woodcock demonstrated Detré's Reaction to Differentiate Human from Bovine Tuberculosis. He also showed 12 patients to demonstrate Woodcock's Blister Reaction. He considered this reaction to be superior to both Calmette's and von Pirquet's reactions. He described the technique as follows. Two small blisters were placed one on each side of the sternum and kept on for 12 hours. The blistered surfaces were washed with ether and with chloroform and were allowed to dry for five minutes. One drop of Koch's tuberculin (O. T.) was put on a piece of oiled silk cut so as to cover one of the blistered surfaces to which it was then fixed by gently rubbing the oiled silk in order to press the tuberculin into the skin. The other, or control, blistered surface must also be rubbed in the same way while covered with oiled silk. After 12 hours the control surface was still pale while the surface to which the tuberculin had been applied was very red and had a rosy halo round it.—Professor H. Littlewood showed two cases of Gastro-enterostomy with recurrence of the symptoms. The first patient was a man, aged 38 years, with chronic ulcer of the lesser curvature of the stomach for which posterior gastro-enterostomy was performed in 1907. The second operation was performed in March, 1909, when changes were found suggesting the commencement of spheroidal-celled carcinoma. The second patient was a man, aged 31 years, on whom posterior gastro-enterostomy for duodenal ulcer was performed in 1905. The second operation was performed in 1909.—Mr. Alexander Sharp showed a man, aged 45 years, with Audible Tinnitus. He complained of a "scraping noise" in the right ear which began 12 years ago after a "chill" and has been constant ever since. The power of hearing and the appearance of the membrana tympani were normal. The murmur could be heard if the observer placed his ear close to the patient's ear. With the otoscope the "scraping noise" was heard very distinctly. It was not unlike a very harsh cardiac murmur, and was synchronous with the pulse. Turning the head to the right side modified the sound, and it could be made to disappear by firm pressure over the right carotid artery. Heard with the stethoscope it was very loud and could be recognised over any part of the head.—Mr. Walter Thompson showed a man on whom Gastrostomy for Malignant Disease of the Œsophagus was performed 12 months ago.—Dr. A. L. Whitehead showed a case of Mastoid Disease with Extra-dural Abscess and Temporo-sphenoidal Abscess, for which the radical mastoid operation was performed on Sept. 30th. Recovery was uneventful.—Dr. A. Bronner showed a case of Hypertrophy of the Mucous Membrane of the Trachea in a man, aged 55 years, causing recurrent attacks of laryngitis, demonstrated by direct laryngoscopy.—Mr. S. W. Daw showed a case of Compound Fracture of the Humerus with fixation of the lower fragment to the shaft by a metal plate and screws, so restoring continuity and enabling passive movements to be made on the third day.—Dr. C. Oldfield showed a patient who had been operated on for Ectopic Gestation to near full term. There had been retention of fœtus for 12 months, suppuration of the sac, and rupture into the colon. The menses stopped in the early summer of 1908. The only time that the patient was seen by a medical man was a year ago, when she appeared to be at full term. On Nov. 27th the abdomen was opened and a fœtus was extracted from a sac, which also contained foul fæcal pus and gas. On the left side in the depths

of the sac there was a button-hole opening into the bowel, from which yellow liquid fæcal matter ran freely. Formed fæces were now passed voluntarily per anum, and the wound discharged only a little greenish pus.—Mr. B. G. A. Moynihan showed a case of Dysphagia occurring in a woman, aged 38 years, for whom gastrostomy had been done elsewhere two years ago for supposed malignant disease of the œsophagus. The diagnosis of cardio-spasm was made and the use of the X rays revealed an enormously dilated œsophagus along which peristaltic waves were seen to travel. A bullet attached to a silk thread was swallowed and 27 feet of the thread passed down the œsophagus until the bullet was recovered from the rectum. The twisting of the silk in the intestine gave a fixed point so that the oral end of the silk being held taut a hollowed bougie could be passed over it into the stomach and the cardio-spasm overcome. The patient has gained weight and was taking food much better than formerly.—Dr. W. H. Maxwell Telling showed a case of Headache occurring at intervals due to Nodular Mycsitis of the Muscles of the Neck in a man aged 28 years. The muscles presented numerous nodular and doughy thickenings, which have almost entirely disappeared under massage, with alleviation of the headache.—Other cases were shown by Dr. T. Wardrop Griffith, Dr. E. F. Trevelyan, Mr. H. Collinson, and Mr. Michael A. Teale.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on Dec. 10th, 1909, in the out-patient department of the Western Infirmary, with Professor R. Muir, the President, in the chair, and took the form of a clinical and pathological demonstration by the staff.—A large number of card specimens were shown, and the following cases were demonstrated:—Dr. J. Walker Downie: (1) Case of Stenosis of the Larynx; (2) a boy recently operated on for Removal of a Large Thyro-hyoid Cyst; and (3) some recent cases of Radical Operation for Cure of Empyema of the Antrum of Highmore, &c.—Dr. J. Stoddart Barr: Cases illustrating (1) Congenital Syphilitic Disease of the Labyrinth; (2) Auditory Vertigo; and (3) some of the Pathological Appearances seen in the Tympanic Membrane and Tympanum during the course of, and consequent upon, Chronic Otorrhœa.—Dr. J. G. Tomkinson: A series of cases including (1) Ichthyosis Simplex; (2) Pityriasis Rubra Pilaris; (3) Extensive Rodent Ulcer; (4) Tubercular Ulcerative Syphilide treated by intramuscular injection; (5) Syphilitic Elephantiasis, treated by intramuscular injection; (6) Generalised Lupus Vulgaris; (7) Lupus Erythematosus; (8) Extensive Favus, treated by Sabouraud's method; and (9) Tinea Tonsurans, treated by Sabouraud's method.—Dr. J. Crawford Renton: (1) Two cases of Excision of the Elbow-joint, with X ray photographs showing reproduction of the bones removed; (2) Pylorus removed for malignant disease (recovery); and (3) Cancer of the Colon (two cases).—Dr. J. H. Nicoll: A case of Hypertrophic Stenosis of the Pylorus; also several cases of the condition treated by operation.—Dr. R. Stockman: (1) Case of Tetanus; and (2) case of Amyloid Disease.—Dr. W. MacLennan: (1) Case of Splenomegaly with Blood Changes; and (2) case of Acromegaly.—Dr. R. Barclay Ness: (1) A girl, aged 5 years, with Chronic Polyarthritis and Enlargement of the Lymphatic Glands (Still's disease); and (2) a man with Addison's Disease.—Dr. Alexander MacLennan: (1) Four cases operated upon for Cubitus Varus (with special reference to the prevention and treatment of the deformity); and (2) a case where a Toenail was Transplanted to the Thumb.—Dr. Cruickshank (for Dr. Dalziel): (1) Case of Multiple Chondromata of Fingers; and (2) a series of patients operated on for Malignant Disease of the Tongue, Fauces, &c.—Dr. A. B. Sloan: A case with Marked Retraction of the Heart to the Left, due to fibroid changes in the lung.—Dr. Archibald Young: A case after operation for Forward and Upward Dislocation of the Head of the Radius.

PRESENTATION TO A MEDICAL MAN.—At the annual distribution of medallions and certificates in connexion with the Midland Railway Ambulance Corps (Bristol division), which took place at St. Philip's Station, Bristol, on Dec. 20th last, Dr. James Smith Mather was presented with a handsome carriage rug in appreciation of his services as honorary surgeon to the corps for the past six years.

Reviews and Notices of Books.

The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., B.Sc. Lond., F.R.C.P. Lond, Emeritus Professor of Medicine and Clinical Medicine at University College; Consulting Physician to University College Hospital and to Brompton Hospital for Consumption and Diseases of the Chest. Tenth Edition, with Appendix, 1909. London: H. K. Lewis. Pp. 1410. Price 12*s.* 6*d.* net.

IN our review of the tenth edition of this work, which was published in THE LANCET of Jan. 20th, 1906, p. 163, we expressed the favourable opinion which we had always held of this well-known text-book, and pointed out the additions which had been made since the previous edition had been published. The volume before us is a re-issue of the tenth edition, with an Appendix, dated 1909, bringing the treatise up to date. Dr. Roberts rightly points out that the changes and developments affecting the progress of modern medical science and practice are so numerous and rapid that it has become an almost impossible task to keep up with them during the revision of a general work of this kind so as adequately to incorporate their results in the text. This applies more particularly to the investigations which have been made in the domain of the infectious diseases. A brief summary of the more striking and real advances which have been made is therefore given in the form of an appendix.

When the article on immunity contained in the tenth edition of the book was written Sir Almroth Wright's "opsonic theory" had hardly been enunciated. Dr. Roberts has therefore taken the opportunity of considering this doctrine from a general point of view and indicating its chief practical bearings, and it is further referred to in relation to the more prominent individual infective conditions with which it has been more particularly associated. The phenomena of auto-inoculation and of hetero-inoculation are described and their practical applications are discussed.

In the consideration of enteric fever, the interesting problem of typhoid carriers is mentioned, and the question of diet in this disease is touched upon. Seibert's milk-free fluid diet is referred to, the advantage of the method being, according to this observer, the elimination of fermentation of undigested milk. With due precautions, however, Dr. Roberts is still in favour of a milk diet in the majority of cases.

The occurrence of numerous epidemics of cerebro-spinal fever in different countries during recent years has given opportunities for investigation which have led to important results, and the various facts which have been brought to light as regards the nature, spread, and treatment of the disease are here duly chronicled.

Sleeping sickness and Malta fever also receive attention, and the agency of goat's milk in spreading the latter malady is fully admitted. The pneumococcus infections are also discussed, and a good account is given of the various manifestations which may be met with as a result of these infections.

Attention is drawn to a few of the more prominent points in connexion with the innumerable investigations which have been carried out during recent years in relation to tuberculosis. The discussion which has taken place as to the relationship between "human" and "bovine" tuberculosis is touched upon, and the use of tuberculin in diagnosis and treatment is briefly considered. Dr. Roberts supports the opinion, now generally held, that when properly

carried out and duly regulated the treatment of tuberculosis by tuberculin and sera is of decided value.

Short accounts are also given in the Appendix of advances which have been made as regards the nature and treatment of other diseases, the usual classification being adopted of considering the maladies under the particular systems of the body which they affect.

The complete work is now bound in one volume, which renders it more convenient both as a text-book and for reference. We have only cordially to repeat our former favourable opinion of the book.

Klinik und Atlas der Chronischen Krankheiten des Zentralnervensystems. By Professor Dr. AUGUST KNOBLAUCH, Director of the City Infirmary of Frankfort-on-the-Main. Berlin: Julius Springer. 1909. Pp. 608. With 350 illustrations in the text, some coloured.

THE common reproach that "on the Continent they do things better" is in particular true of the utilisation for teaching purposes of the abundant clinical material of infirmaries and poorhouses. The elegantly printed and illustrated volume under review is a fresh proof of this contention. Some years ago a holiday course of three weeks on the chronic diseases of the nervous system was projected by Dr. Knoblauch, and conducted by him at the City Infirmary of Frankfort. Its success was such that what was originally intended to occupy a week or two in summer has now developed into a regular series of clinical lectures and demonstrations held weekly throughout the winter terms. The material at this infirmary, we venture to say, is not necessarily more abundant or more varied than what is to be found in many of our large English infirmaries, but when it is, so to speak, transformed into a set of lectures such as this book contains we are astonished at the instructiveness and interest that may thus be provided.

While the variety of the clinical cases no doubt constitutes the charm of the lectures, from the point of view of the audience, it is at the same time somewhat of a drawback when we take up the book. The subjects range from herpes zoster to leprosy, and from hysteria to cerebral tumours. We have chapters or sections on osteomalacia, athyreosis, cretinism, idiocy, infantilism, and exophthalmic goitre, and on other topics whose connexion with the central nervous system is still more problematical. The author has endeavoured to introduce some sort of system into his work, and has grouped his material under the headings "Diseases of the Muscles," "Diseases of the Cerebral Section of the Cortico-Muscular Paths," and so on; yet we find no fewer than 150 pages, or a quarter of the book, devoted to tabes and disseminated sclerosis, while the symptoms of cerebral tumour are dismissed in two. There is little that is new or novel in the volume; many of the diagrams are borrowed from accepted text-books; on the other hand, the photographs of patients are altogether admirable, and so far as they go are not surpassed by any atlas of nervous diseases with which we are acquainted.

One of the most readable chapters in the book is that on myasthenia and Thomsen's disease. Dr. Knoblauch lays great stress on the presumed existence in all vertebrates of two kinds of muscle fibre—the "quick" and the "slow." The former are pale in colour compared with the more ordinary "red" muscle fibres and are readily distinguishable by the naked eye in the muscles of birds and mammals. The pale fibres are the first to respond to an innervation, but they tire almost immediately, whereas the red fibres react more slowly but thereby are capable of continuing the innervation. Basing his theory on these statements, Dr. Knoblauch declares that a pathological increase of the pale at the expense of the red fibres in myasthenia gives us the key to the mystery of the disease. The alteration in the proportion of pale to red is in all probability of congenital origin. *Vice versâ*, in myotonia congenita or Thomsen's disease we have a condition where there is a pathological diminution of the pale fibres and corresponding increase of the red. Such theorising is no doubt suggestive, but the basis of ascertained fact on which it is erected is at present exceptionally inadequate, if not entirely mythical.

The chapters on tabes and disseminated sclerosis are well written and very complete, but, of course, they cover familiar ground and might well have been more concise. One or two remarks are rather surprising. We are told that in about 50 per cent. of cases of the latter "an ophthalmoscopically visible true optic neuritis" is met with. We are further told that the transience of the sensory changes in disseminated sclerosis, as compared with their permanence in hysteria, is an important point in differential diagnosis. Statements such as these are so grossly inaccurate that they detract much from the favourable impression which a first glance through the volume affords.

One of the obvious advantages of work in an infirmary is that a patient suffering from a chronic disease may be kept more or less permanently under observation, and his case may be followed for years, with opportunity for re-examination from time to time. A well-known case in point is given in detail by Dr. Knoblauch, that of a patient diagnosed in 1878 as suffering from general paralysis, and presenting at that time an unusually complete picture of the disease. At one time death was daily expected, but the patient began to improve, so much so that an entire disappearance of the symptoms led to his case being published in 1884 by Tuczek as one of general paralysis cured. Shortly thereafter it was found that his knee-jerks were no longer obtainable, and signs of tabes began to appear. His case was followed carefully till his death in the infirmary in 1898, when the characteristic degenerations of tabes were found in the cord, the usual pathological indications of general paralysis being conspicuous by their absence. Thus the case became one of permanent value in the literature, a result to a great extent attributable to the infirmary system.

This handsome volume will, we think, prove most attractive to those who have the good fortune to be familiar with the cases therein described, and will serve to refresh the memory by its photographs and diagrams. Its general interest is slighter, for as a clinical atlas it is incomplete, and as a text-book it is unsystematised.

The Arteries of the Gastro-Intestinal Tract with Inosculation Circle. By BYRON ROBINSON, M.D., Professor of Gynæcology and Diseases of the Abdominal Viscera in Chicago College of Medicine and Surgery. With 88 figures. Chicago: Chicago Medical Book Company. 1908. Pp. 222.

THE author of this monograph has borrowed the style and language of a vendor of patent medicines to describe a most excellent series of observations on the distribution of the arteries to the abdominal viscera. In this work he brings together the results gained during the dissection of 65 human subjects; the variations in the origin and distribution of the abdominal vessels are tabulated, and 88 most faithfully executed drawings are reproduced showing the "inosculation circles" of the abdomen. "The intention of this book," writes the author in the preface, "is to expose from the solid ground of nature [*sic!*] anatomy and physiology of the *arteries* and *inosculation circles* of the gastro-intestinal tract for the utility of medicine and surgery." He does not hesitate to allow his candid friend, Dr. Thomas G. Atkinson, to state in an introduction to the monograph, that "the influence of this contribution to anatomy and physiology upon medicine and surgery can hardly be over-estimated," and that "probably

no one man has made more original or valuable contributions to anatomical knowledge" than the author of this monograph. Although we cannot endorse Dr. Atkinson's statements, we freely admit that those engaged in "the progressive advancement and blooming of intestinal surgery" (to borrow the author's phrase) will find here a more detailed account of the blood-supply of the intestinal tract than elsewhere.

Dr. Byron Robinson claims what he names the "inosculation circle" as his special discovery. His real discovery, of course, is not the anatomical fact that the arteries to the stomach and bowel form anastomoses, but the meaning he attributes to anastomosis. The object of the "inosculation circle" is, in his opinion, "to engorge its peripheral viscus and to transport blood volume from one viscus to another." Further, he supposes that each "inosculation circle" has a nerve mechanism which leads to a circulatory engorgement of the organ supplied by that circle. Few medical men will be prepared to accept Dr. Robinson's explanation of arterial anastomoses, and yet it is doubtful if the orthodox explanation accepted by most medical men is much more satisfactory.

Diseases of the Pharynx and Larynx. By Dr. E. J. MOURE, Surgeon, Nose, Ear, and Throat Department, Faculty of Medicine, Bordeaux. Translated and adapted by J. MALCOLM FARQUHARSON, M.B. Edin., F.R.C.P. Edin., Lecturer on Diseases of the Nose, Ear, and Throat, School of Medicine, Royal College of Surgeons, Edinburgh. With 210 illustrations. 1909. London: Rebman, Limited. Pp. 403. Price 12*s.* 6*d.* net.

Dr. Moure's work as a laryngologist has a world-wide reputation, but his book on the pharynx and larynx is not well known in England. Dr. Farquharson has performed a most useful task in editing an English edition. We are immediately struck with the skilful subdivision of the various diseased conditions, especially in diseases of the pharynx, which is far more minute than is usual in English treatises, and must, if the teaching in Dr. Moure's book be followed, facilitate the selection and application of appropriate remedies. Under pathology of the pharynx we find erythematous angina, pemphigus, acute catarrhal angina, acute tonsillitis, herpetic angina, acute ulcerative lacunar tonsillitis, ulcero-membranous angina, pseudo-membranous angina (non-diphtheritic), diphtheritic angina, and tonsillar and peritonsillar abscess, the latter being variously subdivided. It must be obvious that however skilful the writer may be who groups these numerous anginæ under a few heads, his readers will have usually greater difficulty in selecting an appropriate remedy than if they referred to a work with greater minuteness of subdivision. It is also of far greater interest to the student to find that the usual "sore-throat" has so many varieties. And in great measure the same close attention to detail is exhibited in the portion of the book bearing on diseases of the larynx.

Numerous prescriptions are to be found in the text and will be of quite as much value in their way as the descriptive text is in its way, for it is well known that patients with experience of French and English medicines consider the former the less objectionable.

Dr. Moure's book, so admirably translated by Dr. Farquharson, should receive a ready welcome, and will be of considerable value both to teachers and to students.

LIBRARY TABLE.

Bau und Entwickelung der Mundhöhle des Menschen unter Berücksichtigung der Vergleichenden Anatomie des Gebisses und mit Einschluss der Speziellen Mikroskopischen Technik. Lehrbuch für Zahnärzte, Aerzte, und Studierende. Von Privat-dozent Dr. GUIDO FISCHER, Zahnarzt und Leiter der zahnärzlichen, der Königlichen Universität Greifswald. (*The Structure and Development of the Human Mouth.*) With 18 plates and 340 illustrations. Leipsic: Werner Klinkhardt. 1909. Pp. 436. Price M. 16.—This is an elaborate and interesting account of the mouth in man, considered especially with reference to the structure of the mouth in many of the lower animals. From the position of the author as dental surgeon in the Dental Institute in the University of Greifswald it is only natural that in this book more attention is paid to the teeth than to most of the other structures of the mouth, but the other parts are by no means neglected. The first chapter deals with the cavity of the mouth in general. The second is concerned with the lips, the cheeks, and the muscles of mastication, while the third deals with the tongue and the glands of the mouth. Two chapters are devoted to the bones of the jaw, and then come several chapters concerned mainly with the structures of the teeth. In the second part we have the comparative anatomy of the teeth in the various classes of mammalia. This is a very interesting section, and is well illustrated with reproductions of photographs from the jaws of many of the lower animals. In the third part of the volume is given a very complete account of the microscopical anatomy of the teeth, both during development and when fully formed. In the fourth part the author has provided an excellent description of the methods of examining microscopically the various tissues composing the teeth. He describes their decalcification, their hardening, imbedding, staining, and cutting. The whole work is satisfactory in design and execution, and we would specially praise the very numerous illustrations which adorn its pages; some of these are coloured, and, taken altogether, they represent the most modern aspect of book illustration. A work such as this should prove of interest not merely to dental surgeons, but to all the members of the medical profession.

Home Exercises for Health and Strength. By FILIP SYLVAN, M.D. Berlin. London: Eveleigh Nash. 1909. Pp. 122. Price 2*s.* 6*d.* net.—This little volume consists of two equal parts. The second, or essential one, presents a series of 35 excellent photographs illustrating simple exercises which require no apparatus, but are such as anyone could perform in his bedroom. Each exercise is briefly and sufficiently described in simple language. To those who would have the patience and perseverance to follow them, these exercises would undoubtedly be useful. The first half of the book consists of a somewhat turgid and unnecessary introduction, into which anecdotes of Solon and Anacharsis are dragged, together with a tirade against the use of alcohol by nursing women, which may be perfectly justifiable, but which has nothing to do with gymnastics. It is not admitted by all obstetricians that the promiscuous practice of gymnastics tends to easy parturition, as Dr. Sylvan suggests. All Greek scholars will resent the spelling of "Sythian"; it is indefensible.

The Common Weal: a Study of the Federal System of Political Economy. By ALFRED P. HILLIER, B.A., M.D. Edin. London: Longmans, Green, and Co. 1909. Pp. 162. Price 4*s.* 6*d.* net.—The established custom of this journal has been always to eschew political controversies unless they have an essential and direct connexion with medicine. So well understood is our rule that it is probable that we have only been favoured with this work for notice on account of the fact that the author is a physician. Dr. Hillier has lived a good part of his life in the South African colonies, and has had wide contact with social and economical conditions in the British colonies and America. Dr. Hillier has also, by his work on the treatment of tubercle and his writings on the subject, commanded a deserved attention from the medical profession. He is not an amateur in medicine, and a perusal of this book shows that he is not an amateur in political economy. It is not our province to comment on such a question as Tariff Reform

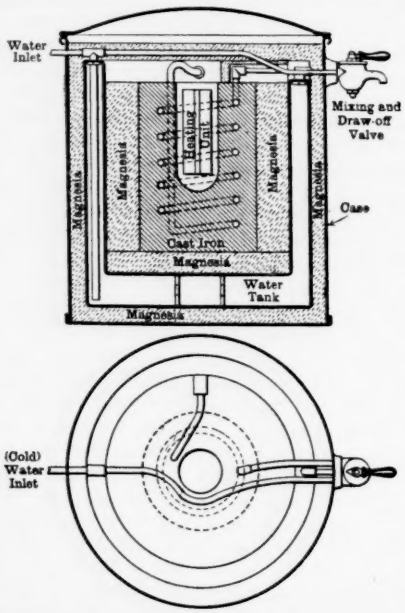
unless an author argues that the practice of medicine is affected one way or another by its proposals. Dr. Hillier advocates a British and intercolonial Zollverein. He is clearly familiar with the literature of the subject, and especially with its classics—Adam Smith, Hamilton, and List. The writing is moderate and restrained in tone, and the reasoning sustained and effective. This is a notable addition to an already large literature on a subject which is commanding much public attention.

The New Baby Book. Revised and improved edition of "How to Manage a Baby." By Mrs. FRANK STEPHENS. London: Horace Marshall. Price 1*d.*—The publishers claim for this little book a circulation of 200,000 copies. We can quite imagine that this is true, and if so it is a matter for congratulation. The information cannot fail to be of use to any young or prospective mother. The directions in general are sound, well arranged, and easily to be understood, while they do not encroach upon the province of the medical man. Cocoa is not so nutritious as the author seems to think, and what is the oily substance in colostrum which "supplies the necessary purgative"? But, as we have said, the pamphlet as a whole is good.

New Inventions.

THE "THEROL" ELECTRIC WATER HEATER.

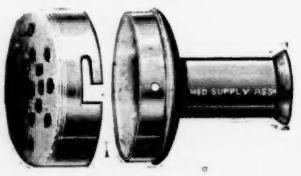
So far the attempt to utilise the electric current for domestic heating purposes seems to have failed principally because the amount of current used is extravagant for the result obtained, the electric energy expended being incommensurate with the calorifying effect produced. The successful application of the electric current for heating purposes can be, however, provided by carefully insulating the heat which can be generated from it. An important step in this direction has been made by Messrs. Spagnoletti, Limited, of Goldhawk Works, Goldhawk-road, London, W., who aim at the storage of electrical energy in the form of heat, for which purpose they construct an electric water heater called by them the "Therol." The apparatus was recently described to us by this firm as one which supplied a satisfactory answer to some observations we made in an annotation in THE LANCET of Nov. 20th, 1909, in which reference was made to the important economies which would be effected if only greater attention were given to the insulation of our domestic heating arrangements. The construction and working of the Therol heater will be understood from the accompanying illustration. In its simplest form the apparatus consists, in the words of its inventors, of a block of iron cast about a coil of pipe and encased in a thick coat of heat-insulating material. The block of iron is continuously heated by means of electricity, and water, when required, is passed through the pipe. By this means a constant current is taken from the mains and hot water is always available in any quantities provided the average amount does not exceed a certain quantity depending upon the fixed amount of electricity consumed. The most important fact about the Therol heater, to our mind, is that the heat is stored and is always available, and a temporary cessation of the supply of current does not entail a cessation of the supply of hot water but only a reduction of the amount available. If, therefore, the heater is disconnected during the hour or so of the lighting peak it has, as far as the central station is concerned, a load factor better than 100 per cent., for it gives an increased consumption without requiring any addition to the plant or capital of the station to meet its demand. This advantage is the outcome of an efficient system of insulating and storing the heat produced by the electric current.



It is stated that the cost of the electricity used is very small and compares favourably with that of gas used in hot-water apparatus. Lastly, apart from the great convenience of having a hot-water supply always available, the system obviously disarms any adverse criticism that could fairly be based on hygienic considerations. There are no objectionable products of combustion to deal with, and there is no danger of any kind attending its operation. It answers admirably in hospital and surgical practice.

IMPROVED INHALER.

THE inhaler shown in the figure has suggested itself to me for the inhalation of medicated air in the treatment of diseases of the respiratory tract. Its special features are: 1. It consists of two simple parts, having nothing to wear out or go wrong. 2. It is made of a light but strong white metal, which admits of it being boiled in soda solution and rendered thus easily aseptic after use. 3. It admits of no erosion in the atmosphere or absorption of septic matter. 4. It is unbreakable and can be used with both hands free, and thus allow the user to follow his or her usual vocation.



Method of using it.—A pellet of absorbent wool is dipped into any suitable medicament and then placed in the centre of a small round plate of the same material. The wool plate is then folded in over the pellet and placed in the mouth-piece. The end-piece is fixed on by means of a bayonet catch. Begin using by blowing strongly outward; this clears the wool from the mouth-piece. The inhalations should be done by long, slowly drawn inspirations until the lungs each time are fully inflated. The breath should be held for some time and then allowed to pass out by the nostrils. This inhaler has been made for me by the Medical Supply Association, of 228, Gray's Inn-road, London, W.C.

Maida-vale, W. ALEXANDER ROSS.

THE JOHN HERBERT WELLS FUND.

THE following is the ninth list of subscriptions to the John Herbert Wells Fund. Further contributions will be gratefully received by the Earl of Dalhousie and Mr. Julian G. Lousada, honorary secretaries and treasurers of the fund, at 16, Old Broad-street, E.C., or by ourselves at this office:—

	£	s.	d.
Messrs. Parke Davis and Co.	10	0	0
Dr. A. C. Inman	5	0	0
Dr. R. Reginald Miller ...	3	3	0
Mr. Adolph Tuck	3	3	0
Hon. Mrs. Henry Littleton	3	3	0
Dr. Philip Frank	2	2	0
Rt. Hon. Lord Avebury	2	2	0
Mr. Arthur L. Baxter ...	1	1	0
Mr. F. J. Dryhurst... ...	1	1	0
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Mr. Harold Clapham ...	1	1	0
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Anonymous (Sierra Leone)	1	0	0

THE LANCET.

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The Recent Work of the Local Government Board.

THE authors of Blue-books—for each has, we believe, many—must sometimes feel a little disappointment at the want of enthusiasm with which their painstaking efforts are received by the public; in fact, the cynic has said that the surest route to an unknown grave is to be a writer of Blue-books, an opinion which, although not wholly true, has a substantial basis. Blue-books, more especially those which take the form of records known as annual reports, are not, as a rule, attractive reading; they do not appeal to the imagination, and it is but rarely that any expression of opinion is ventured upon from one cover to the other. They are written nearly always in a dry, unattractive style with no digressions and with but rarely any illustrations to relieve the monotony of their story or to lighten the burden of their statistical tables; and, lastly, they of necessity appear when some of the facts which they contain, and which would otherwise have been full of interest, have passed into history, or at any rate have become more or less common knowledge. Yet Blue-books form our most important literature; only through them do we possess a continuous record of our national business year by year and a knowledge of the highly complex machinery under which the administrative world works. We have heard the Civil Service spoken of as a great conspiracy of silence, a description of it which in these days of *réclame* is an eloquent testimony to its merits. Governments come and go with all their disturbing influences, but the Civil Service, adapting itself to the exigencies of the situation, and serving each side with equal loyalty, holds on its way; and of its *personnel* little is ever heard until perchance an occasional unknown name appears in the honours list and the worker passes to his well-earned retirement. Of all the Government departments the one which is in closest touch with the daily lives of the people is the Local Government Board, and the mere perusal of the index of any of its annual reports will suffice to show this. Hitherto these reports have been published in one volume which of late years has become a somewhat unwieldy tome, but it appears that in future certain of the parts are to be published separately, an arrangement which will save expense to the public as it will enable those who wish to inform themselves of, say, Poor-law only to purchase separately that part of the report in which they are interested. Part II. of the report for 1908, which is now before us, deals with (*a*) county council administration; (*b*) public health and local administration; and (*c*) local taxation and valuation; and of these sections it is the second which will have the greatest interest for readers of THE LANCET. It is, however, important to note that certain of the matters dealt with in this section will be more fully treated of in the forthcoming annual report of the medical officer of the Local Government Board which we shall notice in due course. All we propose to do now is to bring before our readers the activity of this great department by briefly mentioning some of its recent work.

Since the year 1871, when the Local Government Board was constituted, there has been sanctioned by the department the borrowing of money by urban and rural authorities amounting to the enormous total of £184,262,578, a large proportion of which has been devoted to matters connected with the public health—a fact which indicates the heavy responsibilities which devolve upon the Board in sanctioning these loans and in auditing the accounts to which they in part relate. In the matter of the compulsory purchase of land not otherwise obtainable there were issued during 1908 19 Orders, a number which should be very materially increased under the provisions of the Housing and Town Planning Act which has just received the Royal Assent. The voluntary employment of adoptive Acts is a subject that in a measure indicates the progress in sanitary conception made by local authorities in the country, and we are told that up to Dec. 31st, 1908, no less than 703 urban and 318 rural authorities had adopted that very useful measure the Infectious Disease (Prevention) Act, 1890, while steady progress has been made as regards the adoption of Part III. of the Public Health Acts Amendment Act, 1890. Records are furnished in the report of the work carried out under the Alkalies Acts, the Burial Act, and the Canal Boats Act, as well as under the Housing of the Working Classes Act, while there is a very useful summary of the operations of the Metropolitan Asylums Board for the year 1908. During that year 31,447 cases of "fever" and diphtheria were notified, 22,071 of which were scarlet fever. Of these scarlet fever notifications 90·9 per cent. were admitted into hospital, the corresponding percentages of diphtheria and enteric fever cases being 81·4 and 50·4. The fatality rate of the scarlet fever was 2·6 per cent., of the diphtheria 9·7 per cent., and of the enteric fever 16·3 per cent. The laboratory work of the Metropolitan Asylums Board is gradually undergoing extension, and in addition to 23,500 doses of antitoxin supplied to the fever hospitals in 1908 a large amount of diagnostic and clinical work was carried out. As bearing upon this class of work reference may be made to an important appointment made last week by Mr. BURNS in connexion with the pathological work of the Local Government Board. One of the pathologists of the Royal Commission on Tuberculosis, Dr. ARTHUR EASTWOOD, has been appointed an additional medical inspector, and the immediate object of this appointment will be to apply to public health work the very important results obtained by the Royal Commission referred to, and by this means to ensure the freedom of foods from tuberculosis. But it is also intended to extend investigation into the pathological methods of the diagnosis of diseases, and arrangements have already been made for the necessary

assistance and laboratories. The amount of work devolving upon the Local Government Board in dealing with the annual reports of medical officers of health may be gathered from the fact that in 1908 there were received in the department 1126 reports from urban districts and 678 from rural districts, and during the same year we are glad to see that as many as 87 local authorities made regulations under the Dairies, Cowsheds, and Milkshops Order, 1885, there being at the end of 1908 only 159 local authorities without such regulations. It is reported, too, that 100 local authorities have at the end of this year arranged for the periodical inspection of milch cows. All this betokens a purer milk-supply.

Water-supply and food-supply are fully and freely discussed in the report. As regards the important subject of London's water-supply, great progress has recently been made in facilities for the storage of river water prior to filtration, the storage capacity of the Thames valley being in a fair way to amount to 7500 million gallons, and in the Lea valley it already amounts to 2400 million gallons. This additional storage should very greatly increase the security of the water-supply of the metropolis, since all recent work has shown the value of such storage in reducing the number of organisms present, in destroying the vitality of pathogenic organisms, and in increasing the life of the filters, and thus London is by way of presenting to the world an unparalleled example of a population of many millions supplied in great part from a river polluted with sewage effluents over many miles of its course and yet, owing to its careful filtration, doing so without any clear signs of mischief as regards water-borne diseases. It seems to us that the experience of London in a matter such as this cannot be disregarded by the epidemiologist, and it has to be remembered that in former years, when the storage was much less and the filtration less carefully carried out, the same tale as regards absence of water-borne disease had to be told. The risks of filtration are, as the experiences of Hamburg and Altona have taught us, very considerable, but there is, nevertheless, something about enteric fever in London in the past which it remains for the epidemiologist of the future to unravel. The subject of the sale of foods and drugs is another difficult and important subject which is gone into in the report under notice in considerable detail, and attention is drawn to the eminently undesirable practice of inviting applicants for the post of public analyst to state the terms upon which they are prepared to accept the appointment. In the view of the Local Government Board, with which we are in entire agreement, the offering of such appointments "on tender" is open to strong objection. We are also glad to see that the Board is encouraging the practice of informal sampling of food for analysis as the best means of determining the quarters in which a formal attack should be made with the view of bringing habitual offenders to light.

We have not tried to touch upon the subject of county council administration or upon that of local taxation and valuation, nor have we said anything about that overwhelming subject the Poor-law, concerning which such portly volumes have recently been written by the majority and minority of the recent Royal Commission. But all these subjects—indoor and outdoor relief, the treatment of pauper children, medical relief, the care of the insane, together with the subject of unemployment and the rapidity with which motor-cars traverse our streets—are subjects which are controlled by the Local Government Board, and which are guided, in so far as the public is concerned, quietly and unostentatiously by the permanent secretary of the Board, and by his colleagues, the assistant secretaries. Whatever mutations the political kaleidoscope has in store for Mr. BURNS, he must, it seems to us, feel that he has presided during a highly important period over a department of which he has every reason to be proud and which has afforded him an admirable field for his abilities.

The Functions of the Parathyroids.

SINCE the discovery of the parathyroids in 1880 by the Swedish anatomist SANDSTROEM, their function has been more or less of an enigma, and various views have been put forward widely different in character. Recent experimental and pathological investigations have, however, established that when they are diseased or injured the peculiar condition of tetany, which has itself been for long the subject of speculation and hypothesis, frequently results. The whole subject is reviewed in an interesting and instructive manner by Professor ISAAC OTT and Dr. JOHN C. SCOTT in a collection of papers entitled "Contributions from the Physiological Laboratory of the Medico-Chirurgical College of Philadelphia, Part XVIII.," of which we have received a copy. They state that in man there are usually four parathyroids: two on each side, situated in front of the vertebral column just behind the posterior margins of the lateral lobes of the thyroid gland. They are reddish-yellow or reddish-brown in colour, and their size and shape correspond to those of a small grain of Indian corn. They are in close relation with the inferior thyroid artery, from which they usually derive their blood-supply. It has been shown by W. N. BERKELEY of New York in 125 necropsies that they may be as numerous as five or six, but there may be only two or three, or even one. Developmentally they arise as thickenings of the epithelium on the dorsal aspect of the third and fourth visceral clefts. Small accessory parathyroid granules have been found by ERDHEIM in the thymus, and these thymic parathyroids have been found and removed in animals by Professor OTT and Dr. SCOTT. Histologically, the cells in the parathyroid are very different from those in the thyroid. They are described as being of two types—the chief cells and the oxyphile. They form a colloid material which, unlike that of the thyroid, does not contain iodine. Removal of the parathyroids in animals causes tetany, with partial paralysis, especially of the extensors, trembling in all the muscles followed by a series of convulsive attacks, during which the temperature rises, the condition beginning in from 24 to 48 hours. Chemical analyses in cases of tetany in infants show changes in the calcium salts in various organs—e.g., QUEST found the amount of calcium in the brains of three infants dying from tetany to be small, and his results have been confirmed by MACCALLUM and

VOEGTLIN, who also found that the calcium content in the muscles and in the blood was one-half the usual amount. ODDO and SARLES found that the urine in the tetany of infants contained an increased amount of calcium phosphate, and SILVESTRI held the view that tetany and eclampsia could be explained by a diminution of calcium in the organism. On the basis of these observations certain salts of calcium have been employed in the treatment of tetany both in the human subject and in animals with good results.

This view that tetany is due to a hypocalcification or to a defect in the metabolism of the calcium salts of the organism resulting from interference with the functions of the parathyroids has, however, not passed unchallenged. The defects in the calcium salts have not been found by all observers, and it has been shown by BEEBE that strontium salts are as effective in the treatment of tetany as those of calcium. Numerous observers, including MACCALLUM and VOEGTLIN, have found a high percentage of ammonia in the urine and in the blood. PFEIFFER and MAYER found a toxic principle in the serum of 6 out of 17 dogs with tetany after removal of the parathyroids, and they suggest that the ablation of these organs leaves a poison in the blood. A modification of this view is put forward by BERKELEY and BEEBE, who suggest that the parathyroids form enzymes, which are of great importance in the processes of nitrogenous metabolism, and that the cause of tetany is not lack of calcium but a disturbance of metabolism giving rise to a poison. Professor OTT and Dr. SCOTT give an account of their experiments. They find that removal of the parathyroids alone causes tetany, that there is a coöperative action between the parathyroids and the pituitary body, and that tetany is not due to want of calcium but to a poison in the blood, the calcium changes being only an epiphenomenon. They state that the tetania parathyreopriva can be greatly benefited by pituitary extract, calcium and strontium salts, and by parathyroid extract, and that the grafting of a parathyroid is a cure for tetany. They also record the results of their investigation of the physiological properties of a nucleo-proteid separated from the parathyroids. This substance proves to be a powerful diuretic, exerting a greater effect in this direction than any other glandular extract, not even excepting that of the pituitary. This action is exerted upon the renal epithelium directly. This substance was also found to increase uterine contractions and intestinal peristalsis.

Some interesting studies of the condition of the parathyroids in various pathological conditions are referred to by Professor OTT and Dr. SCOTT and are worthy of note as suggesting some new possibilities in treatment. BERKELEY and LUNDBERG have independently suggested the use of parathyroid extracts in paralysis agitans, and cases of this disease have been reported in which changes have been found in the parathyroids. In gastric tetany, in the cases quoted, there do not appear to have been marked changes in the parathyroids, but in some of them parathyroid extract proved to be of value in treatment. In like manner it has been suggested that the tetany of pregnancy and eclampsia are due to parathyroid insufficiency and can be relieved by parathyroid treatment. Post-operative or surgical tetany after removal of the thyroid is doubtless due to coincident removal of the parathyroids, and transplantation should be attempted. BERARD and ALAMARTINE have collected from the literature 29 cases of tumours of the parathyroid, of which 3 were malignant. In 24 of the cases the tumour was formed solely of parathyroid tissue. The subject of disease of the parathyroids is obviously one which requires further investigation, and the interesting work of Professor OTT and Dr. SCOTT should serve to stimulate this and to encourage more extended trials of the therapeutic effects of parathyroid extracts.

Enteric Transmission by Chronic Carriers.

IT may be remembered that on several occasions during the late session questions were asked in the House of Commons as to the nature of the treatment which certain military patients were undergoing at the Millbank Hospital. These men were themselves in good health, but being "typhoid carriers" were being treated with antityphoid vaccines, in order, if possible, to put an end to their infectivity. A report has just been issued by the Director-General of the Army Medical Service, dealing with this subject, in continuation of a preliminary memorandum issued in June last.[1] The cases admitted to Millbank Hospital were seven in number, all convalescents from India, and all said to have been "carrier" cases. Two of these were discharged to duty after repeated examinations of the dejecta had failed to recover the typhoid bacillus. As to the remaining five cases particulars are afforded in the report just issued, which contains full details of the treatment adopted, and is accompanied by explanatory charts. Two cases were treated by administration of cultures of lactic acid bacilli; in one case, after three weeks' treatment, the typhoid bacilli disappeared from the stools for four days; they then reappeared and continued in practically undiminished numbers for another week, after which time they disappeared finally, the man being discharged to his duty two months later still free from typhoid excretion. In the other case the result was not definite; the typhoid bacilli excreted diminished in number after a time, but again reappeared in the stools in equal abundance; this case is still under treatment. Three cases were treated with antityphoid vaccine, at first with prophylactic vaccine prepared from a non-virulent strain, and afterwards with a specific vaccine prepared from the carrier's own strain of bacillus typhosus; in two of these a rise was noted in the agglutinins and opsonins during the administration of the specific vaccine, but the excretion of specific bacilli in the urine continued and seemed to be unaffected; in the third case the excretion of germs in the stools showed an intermission for several weeks, but unfortunately the man contracted diphtheria and the experiment came to an end. Two cases were treated with sodium benzoate and acid phosphate of soda in order to increase the urinary acidity and bring about destruction of bacillus typhosus. In one the acidity was brought up to + 33 and the bacilli diminished from 2700 to 7 per cubic centimetre of urine; but in spite of continuance of treatment

[1] See THE LANCET, June 26th, 1909, p. 1840.

the urinary acidity again fell and the typhosus excretion increased. In the other case, in spite of a rise in acidity, the excretion of bacilli continued without appreciable diminution.

It is evident that a great deal of work has been expended on this experiment, but it can hardly be said that so far any clear result has been obtained. As regards the excretion of typhoid bacilli in the stools, it seems doubtful if their numerical count, varying from less than two, up to nearly two hundred, millions per gramme of fæces, often apparently without reason, can be relied on. It is admitted that this "enormous variation is probably to be explained by the varying consistency of the stools, some containing more water than others." Drying would have injured the bacteria and therefore could not be employed; but a measurement of the total quantity of fæcal matter day by day and the application of the figure so obtained to the number of germs per gramme might have materially affected the calculation, or expression, of the total daily output of typhoid bacilli. (Possibly the fæces were brought up to a constant bulk day by day, but this is not stated.) As it is, the "enormous variation" in typhosus excretion can hardly, in our opinion, be proved to have had any relation to the administration of the lactic acid bacilli. The research is difficult and laborious, but we hope that it will be continued. In explanation of the probable reasons why the treatment has not proved effective the report refers to JOSEF KOCH'S recent demonstration of the condition of the gall-bladder in a fatal enteric case—viz., that it is "thickened and filled with papillomatous processes containing homogeneous masses surrounded by necrotic areas"; the homogeneous masses are "collections of typhoid bacilli, the toxins of which had killed the surrounding tissues." Supposing similar changes occur in the typhoid carrier, it follows that "no cure can result in such cases until all the contents of the necrotic areas have been discharged, which may be the work of years."

The report concludes with the recommendation of the Advisory Board that "since arrangements are now being made for early treatment on discovery of these cases, it is desirable that any man ascertained to be a carrier should, after a period of observation in England not exceeding three months, be discharged from the service, unless he elects to remain in hospital for treatment." This recommendation has been approved by the Army Council. From the military point of view no doubt the authorities are justified in getting rid as soon as possible of the incubus of the "carrier." But we know that "the smallest worm will turn, being trodden on," and even the humblest private soldier who has enlisted to defend his country or to see the world may object to being confined to hospital "until all the contents of the necrotic areas have been discharged, which may be the work of years." By the present decision of the Army Council he must in that case leave the service, with, we suppose, no compensation for his loss of time and, possibly, of bodily vigour. It seems to us that every man so discharged, and smarting under a grievance, might be a powerful opponent to the recruiting sergeant. This, however, is a matter which no doubt the Army Council has already considered. From the point of view of public health, it appears that some objection may be raised. The man discharged from the army because he is excreting bacillus typhosus is *ex hypothesi* a possible focus of disease which has been contracted in service. He is returned to civil life in a presumably infective condition. The recommendation of the Advisory Board, approved by the Army Council is, that "the medical officer of health for the district in which he will reside should be notified." We fear that many of these discharged soldiers will not "reside" in any district, but will be wandering about from place to place, seeking for work and discharging bacillus typhosus here, there, and everywhere, under no conceivable sanitary supervision. We understand the military position—the authorities want to get rid of the "carrier": but from the non-military public health point of view we suggest that, so long as he is in the service, the "carrier" is under control and supervision, and can in time be made innocuous, whereas after discharge he would be in most cases (possibly in all) free from either supervision or control, and likely to be a spreader of disease throughout the community.

Our remarks have been based on the consideration that typhoid "carriers" are to be regarded as infective, as to which there seems to be ample proof. Besides the classical outbreaks described by KOCH and his assistants in Westphalia and the Rhine Province, and by Dr. D. S. DAVIES at Brentry and Brislington, the report mentions three similar outbreaks in India in 1906–07 and a series of cases at Aldershot in 1908. We learn that the Indian Government, impressed with KOCH'S results, established at Naini Tal in the Himalayas a depôt for enteric convalescents, where accommodation should be provided away from other troops, and from which carrier cases might be invalided to England for further investigation and treatment. We are confident that this has been a wise policy and that the results will amply justify the expenditure incurred. There does not, however, appear to have been any enteric outbreak amongst the troops at home traceable to convalescents returned from the South African War, and as these are, we believe, computed to have numbered about 20,000 or more, some proportion would presumably be carriers and capable of spreading infection. The admissions for enteric fever in the home garrison for the 10 years 1890–99 were 1·3 per 1000; in 1900 they were 1·3; in 1901, 1·6; in 1902, 1·2; since then they have varied between 0·6 and 0·8 per 1000. No spread of infection, therefore, has apparently occurred in the home army. Nor were there any series of outbreaks throughout the country traceable to this cause on the return of this enormous body of theoretically infective persons from South Africa during 1900–02. The great majority of these men went to their homes for a longer or shorter period, and, it goes without saying, no general measures of prevention against spread were taken. Apparently, therefore, the danger is, at any rate in this country, not urgent; none the less, practical medicine should adopt all preventive measures that have been proved to be useful, and amongst these segregation of enteric convalescents is certainly one. The present method of treatment that has been adopted by the Army Council is therefore to be welcomed, except that we should prefer that the army authorities would retain their "carrier" cases

themselves—whether in or out of hospital they would be under military discipline—and not unload them on to the community at large, where we fear they would be neither controlled nor controllable.

Annotations.

"Ne quid nimis."

COSMETICS.

IN every age women, and not infrequently men, have been accustomed to use cosmetics in order to improve their complexions, their hair, or their appearance in general. It is needless to do more than mention the leading case of Jezebel, and in the days of Imperial Rome we find Caligula using a cosmetic to give an added and fictitious dignity, for he is recorded to have sprinkled gold dust in his beard for the purpose of obtaining a superhuman appearance. In earlier classical times women used to paint or apply sundry medicaments to their faces to assume a complexion which they did not really possess. Thus Xenophon in his Oekonomikos makes Ischomachus point out to his wife the absurdity of rougeing, for as he says, "the truth may come out any day." So well was the deceitfulness of the practice recognised that the same word "fucatus" was used in Latin to express both "painted" and "false." Classical satirists and in later times Christian Fathers inveighed against cosmetics in unmeasured terms without much result. For the former we need only refer to Juvenal's scathing lines (Sat. VI., 459–472) in which he describes the rich lady with her face plastered with a paste made of bread-crumb and asses' milk: "Even were she to be exiled to the North Pole she would take her drove of she-asses with her and her face is so covered with plasters and medicaments that you don't know whether it is a face or a sore." For the latter there are many passages in Tertullian and Jerome, while Clement of Alexandria says (Paedagog. III., c. 2): "Not once but thrice are those women worthy of destruction, who use the emanation of crocodiles, who anoint themselves with the froth of the sepedon, who smear their eyebrows with black and their cheeks with rouge." The "sepedon" was a kind of serpent. As for the emanation of the crocodile, it was, according to Pliny (H. N. XXVIII., 8, 28), obtained from the land crocodile, which lives on the most highly scented flowers, and therefore is full of the most pleasant-smelling substance which, "if smeared on with cypress oil, takes away blemishes on the face; if used with water removes all diseases of a creeping nature. It gives the complexion a bloom and removes freckles and other disfigurements." It is difficult to identify this substance, but it was a valued toilet application. It may have been some substance analogous to ambergris. Despite the invectives of satirists and Fathers, cosmetics continued and continue to be used, and, as Dr. Max Joseph[1] very properly suggests in the preface of a little handbook which has prompted these remarks, owing to the subject being neglected by the medical profession it has "unfortunately passed into the hands of unqualified persons." It was not always thus, for nearly every mediæval treatise on medicine contains a section entitled "De Decoratione," in which are given innumerable recipes for complexion washes, rouges, hair dyes, and the like, together with prescriptions for making the breasts firm, for removing wrinkles on the abdomen after childbirth, and other matters of an even more intimate nature. Dr. Joseph in his introduction rightly points out that "cosmetics is not a special science: it is merely a department of dermatology." His simple little book is divided into sections dealing with the cosmetics of the skin, the hair, the nails, and the mouth. The first portion is naturally far the longest, and many recipes are given for complexion washes, powders, ointments, and rouges. The chapter on the hair includes some sound remarks on seborrhœa. Dr. Joseph says of the cosmetic art, "In no other domain do quacks follow their trade so shamelessly," and a glance at the "health column" of any lady's paper or at the advertisements in the popular magazines will show the truth of his statement. Were medical men in general to take a little more heed of the cosmetic art it would be better both for their patients and themselves, and they will find Dr. Joseph's unassuming little book useful. In another edition sundry misprints should be corrected.

[1] A Short Handbook of Cosmetics. By Dr. Max Joseph (Berlin). Authorised English translation. London: Rebman Limited. 1910. Pp. 87. Price 2s. 6d. net.

A MEDICAL BRANCH OF THE NAVY LEAGUE.

WE cordially invite everyone to take note that a branch of the Navy League has been established, or is in course of establishment, composed of members of the medical profession. An influentially signed letter in this issue describes the new movement. The Navy League is one which has done much good in drawing the attention of the country to the supreme importance of our navy, to the strength and efficiency of which we owe our existence as a nation. We take no heed of party politics here, and we deplore, surely in common with most patriotic citizens, the fact that the state of the navy, which is alleged to be now satisfactory beyond common belief and now unsatisfactory to a deplorable point, should be used as a political counter. But the need of knowing where we are is one that we all must appreciate, as also is the feeling that this generation ought to hand on to posterity unimpaired that position among the nations which our forefathers won for us. The Navy League is chiefly an educational body, and members of the medical profession, who travel widely and meet all sorts and conditions of men, obtain opportunities of acquiring and disseminating information which may be of supreme importance. We can conceive that the formation of a medical branch of the Navy League has great possibilities for bringing about a wider comprehension of the vital problems of our national life, and in that belief we wish it all success.

THE MEDICAL STUDENT AND HIS CURRICULUM.

WE publish in another column an admirable presidential address delivered before the Leeds and West Riding Medico-Chirurgical Society by Dr. J. B. Hellier, President of the Society and Professor of Obstetrics in the University of Leeds. Dr. Hellier sets out very clearly the now thoroughly recognised fact that the time of the medical student is over-occupied and that the statutory period of five years no longer suffices for the average man in which to obtain his qualifications. He faces the awkwardness of this situation by simple recommendations which we are glad to see are very much in line with those made in the series of articles upon medical education which were published in the columns of THE LANCET during the last quarter of 1909. Dr. Hellier's main recommendations are that we should leave off pretending that the medical student's curriculum is of five years' duration, when it actually lasts six years or more; that such things as the details of pharmacy and the minutiæ of anatomy should no longer be committed to memory by the student; and that the preliminary scientific subjects should be mastered by the student before joining the medical school proper. All of these recommendations it is, of course, possible to criticise. It is certainly fair

to a medical student that his parents should know that it will probably be six years before he is qualified, for at the present time undoubtedly many hard-working students fall under the suspicion of being lazy or stupid because they do not complete the course in the statutory time. But among medical students there is, of course, a large class that does not work until it is obliged to. These men are not lazy—medical students have little opportunity of being lazy; they only work better under stimulus. This class, if it takes six years to pass when the statutory time is five years, will surely take seven years to pass when matters have been arranged so that qualifications would not be expected for them in less than six years. With regard to the whittling down of instruction in anatomy, there would be considerable difference of opinion as to where it would be reasonable to stop, and if the preliminary subjects could be dealt with by the student before he began his professional studies proper there might be no need for altering the curriculum in this direction. We cordially agree with Dr. Hellier's view that the best entrance to practice is to serve for six months as an assistant in a good general practice. Every young medical man who does this is made thereby into a more efficient public servant; and although the utility of the proceeding is not so obvious when consultant or special practice is being considered, still, experience of the working of a general practice is often of the greatest value to a consultant.

THE POSITION OF COUNTY MEDICAL OFFICERS OF HEALTH UNDER THE HOUSING AND TOWN PLANNING ACT, 1909.

THE Local Government Board has addressed a Circular Order concerning the Housing and Town Planning Act, 1909, to the county councils, drawing attention to certain of its provisions. The very important section relating to the appointment and duties of county medical officers and to county public health and housing committees runs as follows:—"Section 17 of the Local Government Act, 1888, empowered county councils to appoint and pay a medical officer of health, or medical officers of health, and authorised a county council and a district council to enter into an arrangement for rendering the services of the officers so appointed available in the district of the district council. Section 68 of the new Act makes it obligatory upon every county council to appoint a medical officer of health (Sub-section (1)). The duties of the medical officer of health of a county will be such as may be prescribed by General Order of the Board, and such other duties as may be assigned to him by the county council (Sub-section (2)). The Board will in due course issue a General Order on this subject. Sub-section (3) provides that the power of county councils and district councils to make arrangements with respect to medical officers of health under Section 17 of the Act of 1888 shall cease, without prejudice to any arrangement made previously to the passing of the new Act. Sub-section (4) confers on the medical officer of health of a county for the purposes of his duties, the same powers of entry on premises as are conferred on a medical officer of health of a district by or under any enactment. Sub-section (5) provides that a medical officer of health of a county shall be removable by the county council with the consent of the Board, but not otherwise. He is not to be appointed for a limited period only, but the county council are empowered, with the sanction of the Board, to make any temporary arrangement for the performance of all or any of the duties of the medical officer of health of the county, and any person appointed by virtue of any such arrangement to perform those duties or any of them is to have, subject to the terms of his appointment, all the powers, duties, and liabilities of the medical officer of health of the county (Sub-section (6)). A medical officer of health of a county appointed after the 3rd of December, 1909, is by Sub-section (7) prohibited from engaging in private practice, and from holding any other public appointment without the written consent of the Board. Sub-section (8) directs that an Order under the section prescribing the duties of county medical officers of health shall be communicated to the county council and shall be laid before Parliament as soon as may be after it is made, and, if an address is presented to the Crown by either House of Parliament, within the next 21 days on which that House has sat after the Order is laid before it, praying that the Order may be annulled, His Majesty in Council may annull the Order, which shall thenceforward be void, but without prejudice to the validity of anything previously done under it."

RABIES IN INDIA.

WE have received the eighth annual report of the committee of the Kasauli Pasteur Institute issued by Major Bruce Seton, I.M.S., its present secretary, together with the report of the officiating director, Captain R. M. Carter, I.M.S. The report deals with the year 1908, and the total number of patients treated was 1389, as compared with 1349 in 1907. The increase has been confined to native patients, for the number of Europeans has fallen from 433 in 1907 to 342 in 1908; the former year, however, was remarkable for its high admission rate amongst Europeans. The British army furnished 131 patients; the Indian army, 99; European civilians, 159; and Indian civilians, 1000. Since the starting of the Pasteur Institute of Southern India at Coonoor, the number of patients sent to Kasauli from Madras has fallen from 94 to 2, and those sent from Bombay have been reduced from 163 to 124. Cases from Burma will in future probably go to Coonoor instead of Kasauli, but the numbers have not yet been affected. Of the 1389 persons treated at Kasauli in 1908 the percentage of failures was only 0·36, which is the lowest figure reached in the history of the institute. The method of preparing the vaccine now used is that introduced by the late Professor Höyges of Budapest, which differs from Pasteur's original method in that the vaccine emulsions are prepared from fresh instead of dried spinal cords. These can be diluted to any proportion, and the advantages over the old method consist in simplicity of preparation, accuracy of dosage, and lessened disturbance of the patient. Up to the end of 1908 some 2500 patients have been treated by this method and the results would appear to justify the modification in treatment introduced in 1907. The institute gives every facility to those bitten in any part of India, and the director telegraphs his opinion on any case on receipt of either a letter or a telegram. The wisest procedure to adopt in the case of dog bite is to cauterise the wound immediately, to secure the animal if possible and keep it under observation segregated for ten days. If, at the end of the tenth day after inflicting the bite the animal is alive and well, it is not suffering from rabies. If, however, the animal shows any symptoms of rabies the patient should proceed to a Pasteur Institute immediately, and bring with him portions of the dog's brain in bottles preserved in glycerine or Zenker's fluid. He should be accompanied by all persons bitten or licked by the infected animal, and should further try to gather as much information as possible about the animal so as to discover whether other animals or persons have been infected. All such animals should be segregated for six months, and all infected persons should undergo Pasteur treatment at once. Two series of statistics embodied in the report are of peculiar interest as showing instances in which hydrophobia actually resulted from the

bites of a rabid dog or jackal. In the case of 108 persons bitten by supposedly rabid dogs and untreated 44 died, and of 154 persons bitten by supposedly rabid jackals and untreated 48 died. Men of all castes avail themselves of the institute treatment, and there is no doubt about the practical value of the good work that is being done. As regards the past year, an Indian correspondent writes that the alarming increase of rabies has caused a large increase in the number of patients treated at the Kasauli Institute. The attention of the Commander-in-Chief was directed some time ago to the prevalence of the disease in cantonments, and a circular letter on the subject has been issued to all divisional generals from the quartermaster-general's office at army headquarters. It is therein suggested that, with a view of keeping rabies under control, certain general measures should be adopted as far as practicable, in cantonments. These include the registration of all dogs, together with a small tax, in return for which a badge would be issued to be attached to the collar, the use of the latter being compulsory; ownerless or stray dogs to be seized, and if not claimed in 72 hours to be destroyed. In cases where native residents might object to the taking of animal life, impounded dogs could be made over to them on a guarantee of safe custody. Another suggestion is that a non-commissioned officer or man (European or Indian) should be appointed to destroy ownerless and rabid dogs on an outbreak of rabies occurring. These are very sensible suggestions, and it is to be hoped that they will be given effect to, for owners are not asked to do very much to contribute towards the public safety. In hill stations such as Simla and Mussoorie the tax and badge system has been applied, and we believe that it works satisfactorily. It is, of course, impossible to stamp out rabies in India, as the disease is common among jackals, but much may be done in cantonments to keep down the number of ownerless dogs. It is essential, however, that municipal committees should coöperate with the military authorities, for action, to be effective, must be combined, in places where cantonments are in close touch with the native town.

SOME HYGIENIC ASPECTS OF MODERN LOCOMOTION.

THANKS to the urgent representations of our public health authorities, the pioneers of the modern accelerated methods of travelling have been made to realise that while speed and economy are desirable objectives, they must not be attained without any regard at all being given to health considerations. Our readers may remember that some years ago we were amongst the first to point out that the new (as they were then) tube railways were becoming a serious menace to health owing to the accumulation of human exhalations in the tunnels, stations, and lifts; there was practically no means of ventilation provided, the engineers having considered that the train going through the tunnel pushed a column of air in front of it and drew one in behind it. But they disregarded the fact that the stale air was not changed for fresh air. Our apprehensions were ridiculed in many quarters until a scientific investigation of the air "on the tubes" was made which proved our view to be correct. Amongst other things there was shown to be present in the air an amount of carbonic acid largely in excess of that normally present in the air outside. Our evidence of pollution was based on the simple observation that the air possessed that peculiar stale, frowsy smell common to air badly polluted by human exhalations. The smell was very obvious even in the street where the lifts were discharging passengers. In spite of the denials which reached us from the representatives of the tube companies themselves we had the satisfaction of learning what their real feeling about the matter was, for shortly after we published our complaints steps were taken to pump out the stale contaminated air of the tube, and to replace it with a fresh supply. The result now is that the condition of the air in the tubes is splendid and there is no trace left of that stale quality which made it nauseating before the excellent system of ventilation was introduced. The tubes are swept out constantly with volumes of fresh air and there are not a few passengers who think that the draught is excessive and that the supply of fresh air is pushed to an extreme, and that in remedying one evil another has been introduced. The mischief done to health (if any) by a strong draught of fresh air needs no attention compared with the well-known and marked poisonous effects of breathing air which has infiltrated through the lungs of thousands. All this is very satisfactory to those who recognise the value of applying hygienic principles, and we welcome again the obviously, though perhaps not completely, successful efforts which are being made to reduce the nuisances occasioned by motor traffic. Not only, for example, have the smell and noxious fumes of the motor omnibus been reduced, but the noise and clatter of the motor machine have distinctly been diminished. This is a matter of common observation, especially when the experience is recalled of the terrorising vehicles which motor omnibuses were when they were first introduced in the streets. They made hideous noises, emitted a nauseous smoke, dropped oil over the roads, and were generally a source of annoyance and nuisance to the public. The motor omnibus is not a perfect vehicle now, but it has been greatly improved, and the improvements have related largely to considerations of health. The offences created were so objectionable that there can be no mistake about their having been removed to a large extent now, and the improvement can scarcely be explained by saying we have got used to the new kind of vehicular traffic or have resigned ourselves to its terrors.

A BIBLIOGRAPHY OF TRYPANOSOMIASIS.

THE Sleeping Sickness Bureau has issued a "Bibliography of Trypanosomiasis"[1] embracing all known original papers on the subject published prior to April 1st, 1909, and including also reference to works and papers on tsetse-flies, especially Glossina palpalis. The compilation, which was undertaken by Mr. C. A. Thimm, the librarian of the Sleeping Sickness Bureau, has proved entirely successful, and has resulted in the gathering together of close upon 2000 references. As was natural, the majority of the references have been obtained from those nations who, from the fact of their having possessions in Africa, were more immediately concerned in the suppression of sleeping sickness. Consequently we find British, French, German, Belgian, Italian, and Portuguese papers much in evidence. The arrangement followed by the compiler places the names of authors in alphabetical order, the papers being given again under the names of the journals in which they appeared. In this connexion we may mention that a list of some 140 papers is given as having appeared in one or another form in the columns of THE LANCET. Against each original reference is an index number. Dr. Arthur W. G. Bagshawe, the director of the Sleeping Sickness Bureau, contributes a preface to Mr. Thimm's work, and from it we learn that a subject-index is in course of preparation indicating the numbers to be consulted for the various subjects—e.g., sleeping sickness, nagana, mal de caderas, the

[1] Bibliography of Trypanosomiasis. Compiled by C. A. Thimm, librarian of the Sleeping Sickness Bureau. Issued under the direction of the Honorary Managing Committee. London: Sleeping Sickness Bureau. 1909. Pp. 228. Price 4s. net.

rat trypanosome, dourine, trypanosomes of birds, trypanosomes of fishes, chemo-therapy, Glossina palpalis, and the like. This subject-index will be forwarded to subscribers as a supplementary pamphlet. The literature of trypanosomiasis goes on growing rapidly, and the numerous papers which have been published since March 31st, 1909, are contained in No. 6 of the *Sleeping Sickness Bulletin* and in subsequent numbers. There cannot be the slightest doubt that the publication of this bibliography, which gives in a handy form references to the papers published on trypanosomiasis by workers of all nations, will prove of the greatest service; for through it the already extensive literature on the subject will become much more readily available for the assistance of investigators, both in the laboratory and in the field, at home as well as abroad. The compiler, and the Sleeping Sickness Bureau alike, are to be congratulated on this excellent and useful piece of work.

A SPLENDID SANITARIAN.

WE have on frequent occasions alluded to the little two-leaf pamphlet which is published weekly by the Chicago School of Sanitary Instruction, and is devoted to the dissemination of advice and information, couched in plain and vigorous language, prepared by the Department of Health of the city of Chicago. Of all the official records and statistical compilations dealing with the public health of many countries which reach us, we doubt if any have so direct and practical effect on the lives of a large number of people as this weekly Chicago bulletin. The issue which has last reached us announces the death of Dr. Frank W. Reilly, assistant commissioner of health of the City of Chicago, to whom the inception of the bulletin was due, and contains an account of his life, together with personal appreciations from three of his official colleagues. His career was remarkable. He was born in Boston in 1836, and in 1861 took his degree of M.D. at the Chicago Medical College, a short time before the Civil War broke out. He then enlisted as a volunteer surgeon, and in the next year was seriously wounded at the battle of Shiloh, but returned to the front as soon as he had recovered. This gained him promotion to the rank of major, and as surgeon to an infantry regiment he served under General Grant and General Logan. At the close of the war he turned his attention especially to questions of sanitation, the consummate importance of which had doubtless been impressed upon him during his campaigning experiences. In 1867 he was appointed sanitary inspector to the Chicago Department of Health, and six years later left the city for the United States Marine Hospital Service, where he continued to do admirable work in connexion with widespread epidemics at the stations of his service. His conduct during yellow fever outbreaks at Memphis and Vicksburg gained him a National Sanitary inspectorship and the control of sanitation in the Mississippi valley. In 1885 Dr. Reilly turned his attention to journalism, very probably having realised the enormous importance of educating the people in the principles of hygiene before any thorough effect can be expected from sanitary legislation. He became a leader writer and then editor of the *Chicago Morning News*, and conducted the successful campaign for a new system of drainage and a purer water-supply in that city, the urgent need for which was shown so fully by the report of THE LANCET Special Commission of Enquiry before the great Chicago International Exhibition. In 1894 he re-entered the service of the Health Department, and has continued in it ever since with the greatest credit, as the following figures show. Between 1881 and 1894 the death-rate from preventable diseases was 2072 per 100,000 of population. Between 1895 and 1908 the corresponding figure was 1479, representing a saving of 147,525 lives during 14 years, chiefly owing to the application of proper sanitary precautions. Upon these facts one of his biographers makes the comment: "If it be argued that our age is one of advancing standards, the answer is that standards advance as they are carried—advance is not automatic—and Dr. Reilly carried standards. ..... At death to have it chronicled that thousands are living because you lived and worked might well be the highest ambition of him who aspires to be remembered as one of mankind's greatest benefactors." The story of Dr. Reilly's life can hardly fai to encourage all medical men who read it; it will help them to forget the spiteful sneers and ignorant malice that in some quarters seek to detract from their work and their service. The soldier who advances his country by the slaughter of its enemies deserves recognition from posterity, but in a less degree than the man who with the weapons of science, courage, and perseverance makes, as did this man, a successful onslaught upon the innumerable host of death.

THE TREATMENT OF EPILEPSY WITH CALCIUM SALTS.

THE discovery of the action of calcium salts on the cerebral cortex and their application in the treatment of epilepsy we owe to the researches of a succession of Italian investigators. Sabbatani found that soaking the cortex in a solution of calcium chloride diminishes its excitability, while such salts as sodium oxalate or citrate have an opposite effect; and he came to the conclusion that poverty of calcium salts in the circulation is an important factor, if not in the causation, at least in the continuance of epilepsy. Besta discovered that in 37 out of 45 cases of epilepsy the coagulability of the blood is diminished compared with the normal. Others have obtained similar results. The spasmophilia of rachitic children, as was pointed out by Silvestri, becomes of increased significance in this connexion. For these reasons, and in view of the desirability of procuring as wide a choice of therapeutic agents as possible in the treatment of a disease of such chronicity, any information on the subject of a clinical and practical nature is welcome. Among various favourable reports that have been published reference ought to be made to one from Mr. Arthur Litteljohn.[1] One of his patients was disoriented, dirty in her habits, incoherent, noisy, and spiteful, and was having fits, of an aggravated *petit mal* type, on an average three to five times every 24 hours. Under 15 grains of calcium lactate three times a day her fits were reduced from 30 or 40 weekly to *nil*, and her mental state improved. Another almost equally striking case is recorded by the same observer. Successes of this description ought to encourage the practitioner to employ calcium salts more frequently, especially where bromides seem to be inefficient from the outset or to lose their usual efficacy after prolonged exhibition, particularly since the evidence for the therapeutic value of calcium is still conflicting. Thus Dr. Julius Donath, physician to the Nervous Section of the St. Stephan Hospital in Budapest, and a well-known continental authority on epilepsy, has published in a recent number of *Epilepsia* a series of nine cases where the same favourable results were not obtained. Calcium chloride up to 135 grains daily was tried; in four cases without any effect at all, and in the others with only a slight diminishing influence. The method, therefore, has scarcely passed the experimental stage, and for that matter there is no certainty whether these abnormal chemical changes in the blood of epileptics are really the cause of the discharges, or merely a coeffect of the disturbances in the central nervous system. Dr. John Turner of Brentwood Asylum failed to find that diminution in the coagulability of the

[1] THE LANCET, May 15th, 1909, p. 1382

blood already referred to as noted by Besta. Yet Perugia[2] has corroborated the latter's results in 36 cases of genuine epilepsy, but affirms that while the administration of calcium salts increased the blood coagulability of his cases it had no effect on the number of attacks. Everyone who has to deal with protracted forms of epilepsy can recall instances of the apparent uselessness of bromide treatment, and while the calcium method has not perhaps come up to expectation it is surely worthy of further and extended trial. It may be especially serviceable in those not uncommon varieties of severe *petit mal* that are described by Mr. Litteljohn.

THE MEDICAL ASPECT OF A WINTER ELECTION.

THOUGH some may grumble at the mildness of the present weather as unseasonable, yet we are inclined to wish its continuance if only for the sake of those who are taking or are about to take an active part in the great political struggle on which we are entering. We know personally of severe mischief caused to the health of enthusiastic workers in a former mid-winter election. Indeed, the readiness with which so many professional and business men, of middle age and more, prepare to undergo the personal discomforts of active participation furnishes a good example of public-spirited self-sacrifice. Not only the candidates, but all their active supporters lead a life of dangerous stress during an election. To the mental and laryngeal strain which they have to undergo must be added the unaccustomed exposure to which they are submitted, particularly in rural constituencies. Long evenings spent in chilly motor-car rides from place to place are interspersed with speech-making in the stuffy atmosphere of village schools, a constant alternation between the extremes of heat and cold which cannot fail to try the strongest. With the coming of the motor-car the political candidate, like the medical man, has changed his methods, and now does far more work in the 24 hours than he did before. In the days when he only attended one or two meetings in an evening, and had to travel to them in a closed carriage, the only landscape visible the strip of hedge or dyke revealed by the light of the carriage lamps, he ran a risk of being bored but not of being exhausted. Compared with the monotony of the older form of travelling, an open motor-car, even with the temperature at 10° below zero, seems preferable, but the added work made possible, and the more exciting conditions under which it is done, must have their influence. We consider that it is unlikely that the full number of elected members will be in a fit state to attend the opening day of the new Parliament.

COINCIDENT APPENDICITIS AND PERFORATED GASTRIC ULCER.

ONE of the first principles of diagnosis is that the simplest diagnosis which is capable of explaining all the phenomena present should be preferred. Therefore a diagnosis of the coetaneous existence of two entirely independent morbid conditions must always be accepted with reserve, unless it is required to explain all the signs and symptoms. Mr. C. A. Moore has recorded in the present number of THE LANCET a case in which two important acute abdominal lesions occurred simultaneously. A girl, aged 18 years, had an acute appendicitis, and at the same time a perforation of a gastric ulcer took place. Several attacks of pain in the right iliac fossa had preceded the acute attack, and she had also been treated twice previously for gastric ulcer. Therefore, the diagnosis was not so difficult as otherwise it might have been. When, the appendix having been explored first, it was found that it had not perforated, though there was much peritoneal exudate, it was clear that some other lesion was present, and from the history of the case and of the attack that it was probably a perforation of a gastric ulcer. The successful issue of the operation, on which we heartily congratulate Mr. Moore, depended mainly on the fact that the stomach was nearly empty at the time of perforation, and therefore very little contents escaped into the peritoneal cavity. The question naturally arises whether the two conditions were quite independent or causally connected, but there was nothing to suggest such a connexion, and as each condition is common the concurrence of the two is far from improbable, though surgical literature appears to record no case in which a certain diagnosis was made by operation or confirmed by necropsy.

[2] Il Morgagni, October, 1908.

THE NATURAL AND UNNATURAL FEEDING OF THE INFANT.

AT a recent meeting of the Medico-Chirurgical Society of Glasgow Dr. Leonard Findlay read an interesting paper on this subject, in which he discussed the essential differences between human milk and cow's milk. It is to differences in the curd—i.e., in the proteid and fat content of the two milks—that most English and American authorities attribute the unsuitability of cow's milk for infant feeding; but Dr. Findlay pointed out that researches by Meyer of Berlin tend to show that differences in the whey are even more important than differences in the curd. Both healthy and sick children fed with a mixture of human whey and cow curd throve excellently, while children fed with a mixture of cow whey and human curd became ill. Schlossmann's suggestion that cow's milk might owe its deleterious effects and difficulty of assimilation to the fact that the child absorbed a heterologous albumin has not been supported by experimental proof. The carbohydrate in the two milks is identical. The inorganic salts differ both quantitatively ($3\frac{1}{2}$ in cow's milk to 1 in human milk) and qualitatively (Na_2O, CaO, MgO, P_2O_5 being more plentiful in cows' milk, and K_2O, Fe_2O_3 less in amount than in human milk). Experimental administration of different salts to infants (by pupils of Finkelstein) showed that salts of sodium induce a rise in temperature, an increase in weight and an increase in the electrical excitability of the muscles, while calcium salts have exactly an opposite effect. Examination of published analyses of human milk shows great variation in the amount of proteid and fat, and that quite irrespective of whether the child throve or not. It is noteworthy, however, that the salt content in those human milks which disagreed with the infant was abnormally high (even two and a half times the normal), while in those which caused no disturbance it was normal or subnormal. These observations make it not improbable that the good effect of diluting cow's milk results, not from diminishing the amount of proteid, but from reducing the proportion of the inorganic salts. This difference in salt content, however, does not entirely explain the superiority of human milk, for if the salts be separated from human whey, freed from organic matter by burning, redissolved in water, and added to the human curd and fat, the resulting mixture is not only non-nutritious but injurious to the infant. Apparently the human milk contains some beneficial organic substance which is destroyed by the treatment above mentioned. Pfaundler suggested that this substance is complement and assumed that hæmolytic and nutritional complement are one and the same thing. Researches by Moro showed that in breast-fed children and in artificially-fed children who throve well much complement was present, whereas in the blood of

children suffering from alimentary disturbances little complement was found. The accuracy of these findings has been questioned by other observers, notably by Herbert Koch. Dr. Findlay, along with two other workers, reinvestigated the subject during last summer in the clinic of Professor Finkelstein in Berlin and found as the result of observations made on over 100 infants under one year old that the amount of complement varied, not with the mode of feeding or condition of the child, but directly with its age, the complement value rising from *nil* during the first month to 11 per cent. in the second month, and 88 per cent. between the sixth and twelfth months. It is suggested that possibly this absence of complement during the early weeks of life may explain why it is so difficult to rear children artificially during that period, and why the difficulty diminishes as age advances. Dr. Findlay's conclusion must be accepted that we do not yet fully understand the secret of the beneficial effect of human milk, except that it contains some essential and probably organic substance, of the nature of which we are entirely ignorant.

THE PRISON MEDICAL OFFICERS AND THE HOME OFFICE.

WE have received various communications on the subject of the relations which exist between the Home Office and the medical officers of prisons, arising out of letters and articles which have appeared in the *Times*, in the *British Medical Journal*, and elsewhere. It would seem that considerable misconception exists in certain quarters regarding the position in which prison medical officers stand to the central prison administration and to the Home Office. It has, for example, been suggested that the medical treatment of prisoners is interfered with by the Home Office for political motives. Of course, statements elicited by the heat of political controversy are not to be judged by too rigorous a standard, but it is a matter of regret that a charge of such gravity, affecting the personal honour of the medical men in the prison service, should have been made in any way. When prisoners attempt to starve themselves they must be fed, as are lunatics in similar circumstances, by means of the nasal or œsophageal tube. This was not done in the case of the first "suffragette" prisoners because the Home Secretary saw fit to remit their sentences and release them from prison. Subsequently, when the method of the "hunger strike" was adopted as a regular policy, the authorities decided not to continue the practice of liberating the prisoners, and therefore the ordinary treatment was applied by the medical officers as a matter of course. In all this there can be no question of interference by the Home Office with medical treatment, for it will hardly be suggested that the Home Secretary's leniency in the first cases is to be regarded in that light. As a matter of fact, the absolute independence of the prison medical officer in his treatment of the prisoners under his care is secured by statute, and an attempt to limit it in any way, if anyone were found to make so foolish an attempt, would be promptly resented by every medical officer in the service, and, of course, with added vehemence if the attempt were made for sordid political motives. And in this connexion it may, perhaps, be worth while to refer to a further point which impulsive partisans would do well to consider. If it is the duty of the prison medical officer to brook no interference with his efforts to treat his patients to the best of his ability, it is equally his duty, not only as a medical man but as a public servant, to recognise that his responsibility towards those under his care must not be influenced by his personal opinion as to their political or religious beliefs, their social position, or their moral character. He has no right, for instance, in such a matter as the refusal of food, to abstain from applying to a prisoner of good social standing the same treatment which he would use to the outcast of the streets, it being taken for granted that in each case the treatment is a sound and accepted scientific procedure.

CAPTAIN SCOTT'S ANTARCTIC EXPEDITION.

As the unexplored portions of the earth's surface diminish in extent under the advance of geographical discovery, we in this country have special reasons for wishing every success to Captain Robert Scott's forthcoming Antarctic expedition. The cultivation of an adventurous spirit is of vital importance to a nation having such extensive maritime interests as those of Great Britain, and the national sense of patriotism is thrilled when British navigators show themselves as ready in the present day as in the past to run great risks and to suffer hardships in traversing the Polar ice fields. Important scientific results may be expected from Captain Scott's expedition. Additions can hardly fail to be made to our knowledge of terrestrial magnetism, a subject on which the practical use of the mariner's compass is based, and zoologists may be gratified by the discovery of some marine animal hitherto unrecognised. Materials may also be collected for the further study of the currents known to exist in the southern ocean but not enjoying the popular celebrity of the Gulf Stream in the northern hemisphere. The medical officers of the expedition will have an anxious task in view of the perils which almost all Polar explorers have encountered—ever-present perils from exposure and accident; it is also not many years since a British North Polar Expedition suffered from scurvy. In a professional journal it is not invidious to mention that at least two British medical men have within living memory attained celebrity as leading spirits in such expeditions—we refer to Deputy Inspector of Hospitals Robert McCormick and Dr. John Rae, who died in 1890 and 1893 respectively. For these various reasons, and for others which will readily suggest themselves, we trust that our medical brethren, both in their individual and their corporate capacity, will keep patriotic ideals in mind. In London much public interest was aroused not many months ago by the spectacle of Sir Ernest Shackleton's vessel, the *Nimrod*, moored in the river above Blackfriars Bridge. Public interest, however, is apt to be fitful, and on the present occasion an effort must be made, because international competition in every branch of discovery is now so keen that delays are dangerous and no opportunity of encouraging British initiative should be lost. Funds for Captain Scott's enterprise are needed, and subscriptions, which we shall be happy to announce, should be sent to the British Antarctic Expedition (1910), 30, Victoria-street, London, S.W. For a wealthy country such as ours the estimated total amount of £40,000 is not large; the explorers are ready to do their part, and the despatch of the expedition, whether the Pole be reached or not, will do honour to the nation.

THE SANITARY OATH.

THE Oaths Act, 1909, which came into operation upon Jan. 1st of this year, does not seem to give universal satisfaction, and Sir Thomas Bramsdon, who promoted the original Bill in the House of Commons, has written to the newspapers expressing his intention of endeavouring to obtain its amendment should he be returned again to Parliament at the coming election. The differences complained of between the measure as originally framed and as it left the Lords consist in the obligation upon the person sworn to repeat the words of the oath by which he binds himself, instead of assenting briefly to a form recited by the officer of the court, and in his being obliged to hold up a testament instead of

standing with uplifted hand only. The course proposed by Sir Thomas Bramsdon and approved by the House of Commons had the two advantages of simplicity and of the avoidance of contact with a volume previously handled by many others, and possibly by some dirty or infectious persons. The more elaborate repetition of the terms of the oath, on the other hand, should help to emphasise the duty to observe it, and the public elevation of the volume containing the Gospels or the Old Testament should import additional solemnity to a routine which, in its familiar and now discarded form, has always had a tendency to become perfunctory and unimpressive. A few months' trial will probably serve to show with tolerable clearness whether the repetition of the words by jurors, witnesses, and others is the cause of appreciable delay and inconvenience, and it is quite possible that the demerits of the course now ordered may be found to outweigh its advantages. The holding of the book in the hand is the detail with which the medical profession is most concerned. It is decidedly an improvement upon the unclean and dangerous custom of kissing the volume, but unless contact with it is regarded with good cause as advantageous for the purpose of preventing perjury we can see no reason whatever why the ceremonial originally proposed and altered by the House of Lords should not eventually be established in its entirety. We observe that the Act is to be adopted universally, and that it is an error to refer to the word "may" used in it as being in its effect permissive only. It appears to have been used in order that those persons still claiming to bind their consciences in some other manner than by the ordinary formula might remain at liberty to do so.

WE regret to announce the death of Professor Enrico H. Giglioli of the Florentine Istituto di Studi Superiori and of the Natural History Museum of the same city. He died from syncope, due to cardiac lesion of long standing, when within a few days of celebrating his fortieth year as academic teacher. The anniversary evoked many congratulations from the world of nature-study—not a few, indeed, of his friends and admirers being on their way to Florence for the occasion and arriving in time to assist, not at his jubilee, but at his funeral. His biography, which, we understand, is in contemplation, will have a special interest for the English-speaking world for its record of work prosecuted under the inspiration of Darwin, Owen, Lyell, Murchison, Ramsay, Tyndall, and Huxley, with whom he was in frequent correspondence and whose findings he made familiar to Italy by translation, comment, and academic exposition.

FINANCIAL TROUBLES AT AN INSTITUTE FOR THE BLIND.—Remarkable financial complications have recently occurred in connexion with an institute for the blind in Roumania. This institute, which is called "Vatra Luminousa," was founded by Queen Elisabeth of Roumania, and had for its director Mr. Rudolf Monske, the Queen's private secretary. Last year he purchased immensely large grounds close to Bucharest with the object of building a "city for the blind," but the realisation of this plan needed far more money than was at his disposal. To cover a part of the building expenses Mr. Monske endeavoured to borrow 300,000 marks from a German financial house, which, however, questioned the soundness of the guarantee that was offered and would not advance more than 2000 marks. Further inquiries showed that at least half a million marks would be required for the purpose, and the Queen thereupon applied to the King for advice and help. His Majesty has now caused Mr. Monske to withdraw from the undertaking and has granted 500,000 marks from his private purse for the building expenses. The institute will be taken under State management, and a physician of good standing will be employed as its director.

OBSERVATIONS ON THE CIRCULATORY SYSTEM.

BY HARRY CAMPBELL, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN, WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.

II.[1]

The Elasticity and Extensibility of the Tissue Elements Constituting the Walls of the Blood-vessels.

IN connexion with the structure of the vessel wall two terms require definition—elasticity and extensibility.

The *elasticity* of a body is the property in virtue of which it recovers its form after this has been altered by compression, extension, bending, or twisting. With a perfectly elastic body the recovery of form after the removal of the modifying force is rapid and complete. The force which is manifested in the recovery or recoil of such a body is exactly equal to the disturbing force. Liquids and gases exhibit elasticity on compression only; solids on compression, extension, bending, or twisting.

What we have to consider here is the elasticity of certain living tissues—those, namely, forming the blood-vessels—under the application of a stretching force, i.e., a force which causes a lengthening of the tissue elements. We must be careful to distinguish between the readiness with which the form of a substance can be altered (by compression, extension, bending, or twisting) and its elasticity. The two by no means always rise and fall together. The proportion of the one to the other, though fixed for any given substance, differs for different substances. Thus, while such a comparatively incompressible substance as ivory is one of the most elastic substances known (as shown by the great distance which an ivory ball bounds after being forcibly driven against a smooth, highly resisting surface), highly plastic putty is practically devoid of elasticity. In this case the less plastic is the more elastic. On the other hand, white fibrous tissue, though much less extensile than yellow elastic tissue, is by far the less elastic of the two.

The *extensibility* of a substance indicates the degree to which it can be lengthened when subjected to the action of a stretching force. As just implied, there is no constant relation between the degree of extensibility and elasticity of the various bodily tissues. Yellow elastic tissue, e.g., is both highly extensile and highly elastic; it answers to the popular conception of elasticity as exemplified by the familiar drapers' elastic. Strongly contracted muscle fibre, on the other hand, is much less extensile than yellow elastic tissue, but quite as elastic, if, indeed, not more so.

A word must be said here as to the effect of a stretching force in causing a *permanent lengthening* of tissue elements. When a tissue is subjected to the long-continued action of a stretching force it tends to undergo a progressive lengthening, so that after the stretching force has ceased to act its elements will be found to have undergone a permanent lengthening, just as occurs in the tightened-up strings of a musical instrument. Now in this respect highly elastic tissues stand in sharp contrast to those which are feebly endowed with elasticity. A highly elastic tissue in the stretched state promptly regains its initial length after the removal of the extending force; a tissue little endowed with elasticity is much more sluggish in recoil. More than this, a highly elastic tissue, by virtue apparently of that power of recoil which is ever tending to cause it when in the stretched condition to recover its initial length, opposes a peculiar resistance to a permanent lengthening. We see this truth well exemplified in the case of those pre-eminently elastic tissues—yellow elastic tissue and muscle in the contracted state. Yellow elastic and contracted muscular tissues are continually striving when stretched to regain the *status quo ante*; whereas the less elastic tissues tend to remain permanently lengthened after being stretched, and, if the stretching force persists, the process of lengthening tends to continue from day to day, the tissue in the end permanently "giving." Thus, though white fibrous tissue is much less extensile than yellow elastic, the former, under the long-continued action of a stretching force, "gives" considerably more than the latter.

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[1] No. I. was published in THE LANCET of Jan. 1st, p. 48.

It is because yellow elastic tissue and muscular tissue (in the contracted state) are endowed with this peculiar power of resisting the tendency to permanent lengthening under long-continued stretching that *these tissues are always found where there is a liability to constant stretching*—in the blood-vessels, the respiratory passages, the gland ducts, the urinary bladder, and gall-bladder, &c. These various tubes and cavities would undergo progressive dilatation from the long-continued internal pressure to which they are subjected, were they not richly endowed with highly elastic tissue elements, such as these yellow elastic and muscular tissues.

When we speak of the extensibility and elasticity of the blood-vessels we have in mind their walls as a whole, but, as we have just seen, the different kinds of tissue elements constituting the vessel walls show individual differences in respect of these two properties. The elements in question are: Muscle fibres, yellow elastic fibres and membranes, white fibres and connective tissue cells, and endothelial cells.

In what follows I shall group the white fibres and connective tissue cells under the general term of connective tissue,[2] while I shall take no account of the endothelial cells constituting the lining of the blood-vessels.

Comparing the relative extensibility and elasticity of these muscular, yellow elastic, and connective tissues, we find that while the yellow elastic tissue is both highly extensile and highly elastic, and that connective tissue is meagrely endowed in each respect, the degree to which muscle fibre exhibits these properties depends, as already hinted, upon its condition as regards relaxation and contraction.[3] Contracted muscle fibre is more elastic—i.e., has greater power of recoil—when weighted than relaxed muscle fibre, and this power of recoil increases with every increment in the degree of contraction. It is also more extensile—i.e., a weighted muscle undergoes a greater lengthening when in a state of contraction than when relaxed. This does not, of course, imply that the length of the weighted muscle in contraction is greater than the length of the same weighted muscle in relaxation, inasmuch as the shortening caused by contraction may be, and generally is, greater than the lengthening caused by the stretching force. Thus although the muscle fibres of a hypertonic artery are more lengthened by the blood pressure than those of a hypotonic artery, the lumen of the vessel is much smaller in the former case than in the latter. The degree to which the extensibility of muscle fibre is influenced by its contraction depends upon the degree of contraction and the amount of the extending force. By suitably adjusting the two a relaxed muscle may actually be made to elongate by throwing it into a state of contraction (Weber's Paradox).

The high extensibility and elasticity of contracted muscle can be admirably demonstrated in the living body. When, e.g., an attempt is made forcibly to flex the extended forearm against an insuperable resistance, it is evident that the contracted flexors must be in a state of considerable elastic tension—i.e., that they are stretched considerably beyond the length which they are striving to attain. This is shown by the fact that if the resistance is suddenly removed, while the force of muscular contraction remains the same, sudden flexion of the forearm occurs; in other words, the contracted flexors undergo rapid shortening from what must be regarded as a genuine elastic recoil. We may, in fact, regard the contracted flexors in such a case as being stretched by so much as they shorten upon the removal of the resistance to their shortening, as being, that is, in a condition very much like that of a piece of stretched yellow elastic tissue.

The above considerations show that it is not only by the degree of contraction of the muscular media that its extensibility and elasticity are influenced, but also by the extent to which it is rendered tense by the blood pressure. A hypertonic media is both more extensile and more elastic than a relaxed media, while at the same time, by virtue of this enhanced elasticity, it offers a much greater resistance to progressive elongation of its elements. The normal tonus of the media, indeed, constitutes, as we shall see in a later section, a safeguard against that progressive dilatation and lengthening of the blood-vessels which the long-continued action of the blood pressure is ever tending to produce.

From what has been said it would appear that the phenomenon of muscular contraction may be regarded as the assumption by the contracting fibres of a physical state similar to that of stretched elastic tissue. Thus, when a muscle shortens from contraction we may assume that it is in virtue of an elastic recoil, such as is manifested by stretched yellow elastic tissue in its recoil. When, on the other hand, it contracts against insuperable resistance its condition may be compared to that of the stretched elastic tissue striving to recoil, the power of the muscular recoil increasing with every increment in the intensity of contraction.

The influence of the post-mortem contraction of the muscular media on the extensibility of the arterial wall.—This has been carefully studied by Professor J. A. MacWilliam of Aberdeen. This physiologist noticed that the excised carotid of a recently killed ox exhibits a strongly marked and long persisting contraction of the muscular wall, and having devised special methods of prolonging and checking this contraction, he was able to test the extensibility of the arterial wall both when the muscular fibres are in the contracted and in the relaxed state. Experiments were made on the arteries of a large number of oxen, horses, sheep, cats, and men. Transverse and longitudinal strips of medium-sized arteries, such as the carotid, were weighed in the non-contracted and in the contracted state. Testing strips of non-contracted arteries he found that the greatest extension is produced by the first additions to the weight, later additions causing progressively diminishing lengthenings. Doubtless this pronounced initial extensibility is to be explained by the fact that in the non-contracted artery the yellow elastic tissue is the only tissue to be put on the stretch in the first instance, for, as we shall see, when a non-contracted artery is in a state of complete elastic recoil all its tissues save the yellow elastic are crumpled up and need to be pulled out straight before they can be rendered taut. Directly these (especially the white fibrous tissues) begin to get taut they offer a resistance to extension decidedly greater than that offered by the yellow elastic tissue, and their resistance, which increases with every increase in the stretching force, is added to that offered by the yellow elastic tissue. On the other hand, it was found that in testing strips of contracted arteries equal increments in the extending force "cause increments of elongations, relatively small at first, and increasing in magnitude up to a maximum beyond which there comes a progressive diminution in the amount of elongation produced by each successive addition of weight." This behaviour is evidently due to the fact that during the early phases of extension the resistance is entirely borne by the contracted muscle fibres. Directly this resistance is broken down, so that the muscle fibres cease to act as contracted muscle fibres, the yellow elastic tissue, and subsequently the connective tissue also, are permitted to be stretched, and the vessel wall begins to act like a non-contracted portion.

So much for the results obtained by testing *strips* of arteries. Similar results were obtained by experiments devised to test the influence of internal liquid pressure on the capacity and length of non-contracted and of contracted arterial *tubes*. As regards capacity, it was found that, conformably with the experiments on strips of arteries, the distensibility of the non-contracted artery is greatest with the first increments of pressure—i.e., that as the pressure increases above zero the expansion goes on fairly quickly at first, and then proceeds much more slowly. On the other hand, the expansion of the contracted vessel caused by successive rises of pressure is at first very gradual, in marked contrast to what occurs in a non-contracted vessel. When the artery is thick-walled and very strongly contracted the muscular resistance shows no signs of giving way (thus allowing the elastic and connective tissue to be put on the stretch) until a *pressure considerably higher than the normal blood pressure of the animal* has been attained. When, however, the muscular coat of the artery is thin, or in a state of only moderate contraction, the vessel behaves more like one which is non-contracted—i.e., the maximum distensibility is soon reached, say, at 100 milligrammes of mercury, from which part upwards it declines.

[2] The term "connective tissue," as ordinarily understood, includes, of course, yellow elastic tissue.

[3] The term "muscular contraction" needs definition in this place. This condition does not, be it noted, necessarily imply a shortening of the contracted muscle. It signifies that condition of the muscle which leads to its shortening in the absence of an insuperable resistance to such shortening. Similarly, by "degree of contraction," is meant, not the degree to which a muscle actually shortens, but the degree to which it takes on that condition which leads to shortening, in the absence of insuperable opposition. When the resistance is insuperable, it is possible for a muscle to be in a state of intense contraction without undergoing any shortening whatever.

MacWilliam concludes that Roy's well-known conclusion that the maximum distensibility of the arteries occurs at pressures corresponding approximately to the blood pressure they are normally called upon to bear is incorrect.

As regards the effect of internal pressure in causing elongation of arteries, Professor MacWilliam found that the total elongation produced by raising the internal pressure from zero is relatively small in the case of the contracted vessel, but very considerable in the case of the relaxed artery.

All this shows that the contracted media offers a peculiar resistance to the detensile effects of the blood pressure, and helps, as we shall see, to explain why hypotonic vessels are more liable to become dilated and tortuous than hypertonic ones.

Conditions affecting the elasticity of the vessel wall.—The elasticity of the muscular elements of the vessel wall is affected by everything which interferes with their normal nutrition, such as syphilis, tuberculosis, prolonged fever, and other wasting diseases. It is possible that the elasticity of the yellow elastic fibres may be affected in the same way, though I do not know that this has been proved. The soft pulse met with in prolonged exhausting diseases may be largely due to direct nutritive changes in the arterial walls and not merely to modifications in arterial tonus.

(*To be continued.*)

THE REGISTRAR-GENERAL'S ANNUAL REPORT FOR 1908.

I.

IN a leading article of last week we noticed Mr. Bernard Mallet's prefatory remarks on his assumption of office as chief of the National Registration Department at Somerset House. We now proceed to a review of the more important topics discussed by Dr. T. H. C. Stevenson, the recently appointed Statistical Superintendent in that department.

In his letter to the Registrar-General Dr. Stevenson contributes an analysis of the causes of death in the year 1908, together with particulars of the changes in mortality from the principal diseases in the official list which, since the beginning of this century, has been employed in the English reports, as well as in the reports of the Registrars-General of Ireland and Scotland. The unprecedentedly low mortality of the year under notice was certainly influenced by favourable climatic conditions. Much of the life saving represented by the low death-rate, which was only 14·7 per 1000, was due to the lessened mortality from diarrhœal diseases, as well as from pneumonia, tuberculosis, and bronchitis, the mortality from tuberculous phthisis being the lowest hitherto recorded. But we look in vain for evidence of decrease in the ravages of cancer, which disease still continues to show increased mortality in England. Exceptionally low incidence was experienced in 1908 not only in the general mortality but also in the mortality of both sexes at each group of ages up to 55 years. Infantile mortality, however, calculated as a proportion of registered births, was slightly in excess of the unusually low rate of 1907. In this connexion Dr. Stevenson rightly recalls attention to an imperfection always recognised by us as attaching to the method of expressing infantile mortality in terms of births registered—an imperfection which depends on the fact that in England particulars are still lacking concerning the number of stillbirths as well as concerning the number of twin and multiple births occurring in each year. It remains to be seen whether this omission can be supplied either completely or in part by the efforts of municipal authorities under the recent Notification of Births Act.

In the present report, as in several of its predecessors, illustrations are given of the fallacy of comparing urban and rural death-rates without correction for age differences in these variously constituted populations. If, for example, the mortality of the essentially urban county of Lancaster be contrasted with that of the mainly rural county of Cardigan the death-rate of the former county will be found to have been increased by correction from 16·9 to 18·7, whilst that of the latter county has been reduced by the same process from 17·8 to 14·0 per 1000. In other words, whilst the crude or uncorrected rate of Lancashire is lower than that of Cardiganshire by 5·1 per cent., the corrected rate of the former shows an excess of 26·4 per cent. The explanation of these differences is this: that whereas Lancashire contains an abnormally small proportion of persons at the more advanced ages when the rate of mortality is exceptionally high, Cardiganshire, on the contrary, contains an abnormally large proportion at those ages. In the former county less than 3½ per cent. of the inhabitants live beyond the age of 65 years, whilst in the latter county the proportion amounts to nearly 9 per cent. We are gratified to learn that improvement is still observed in the medical attestations of the cause of death, and that substantial decrease is now apparent in the employment by medical practitioners of the ill-defined causes of death enumerated in the official mortality tables. In the quinquennial period commencing with 1875, in which year the certification of cause of death was first made compulsory on registered medical practitioners, the deaths of which the causes were insufficiently defined were equal to 12 per cent. of the total; whereas a quarter of a century later—namely, in the quinquennial period last ended—the proportion had fallen to 9·4 per cent. In the year under present notice the causes of 91·52 per cent. of the total deaths were returned as certified by registered medical practitioners, a proportion which is a trifle less than that recorded in the previous year. Dr. Stevenson concurs with his predecessor in the opinion that this figure does not fully represent the proportion of cases in which medical assistance had been rendered to the sick in their last illness, for he says: "In cases of inquest on the bodies of persons who had received medical attention during life the cause of death is copied from the coroner's certificate, which supersedes the medical certificate entirely, but, except in cases where an autopsy has taken place, it is seldom possible to ascertain from the coroner's certificate whether or not medical evidence has been given, or the purport thereof, if given." In dealing with this subject the report for 1907 contains a paragraph similar to the above with the additional remark that having regard to the importance of securing registration of the actual cause of death it is essential that in every case where an inquest has been held, and in which medical evidence is available, there should be appended to the certificate of the finding of the jury either (1) a medical certificate of death or (2) the substance of any medical evidence given at the inquest. Inasmuch as the foregoing was substantially the deliberate opinion of the Home Office Committee which made a strong recommendation to the like effect in its report to the Home Secretary so recently as the year 1899, it is hoped that steps will be taken to secure some such arrangement as that here referred to, in any legislation affecting the relations of the coroner's court to the public health.

As in previous reports the causes of death of males and females at specified age groups are shown in the present volume, and in the usual tables the deaths at all ages and from the same causes are shown for a series of 20 years. We are pleased to find that the method of graphic representation of vital statistics is still retained and even extended in this report; for by this means readers not specially instructed in statistical science can appreciate readily proportional differences, whether in the incidence or in the fatality of disease. A new diagram is now presented which shows the proportion in which the more prevalent diseases contribute to the death-roll. It consists of a circle the whole area of which represents the deaths from all causes, whilst the deaths from particular causes are represented by various segments of the circle. A glance at the diagram suffices to show how large is the proportion of the whole number of deaths that is caused by a few of the more important diseases, especially by tuberculosis, bronchitis, pneumonia, and cancer; and what is particularly instructive for present purposes, the prevalence, if not the fatality, of the three diseases first mentioned is demonstrably amenable to sanitary control. As previously remarked, the general mortality of England and Wales in the year under notice was the lowest on record. Exactly stated, it was equal to a rate of 14·683 per 1000 living at all ages and of both sexes, and was below the rate in the quinquennium immediately preceding by 5 per cent. Among males the rate was equal to 15·697 per 1000 living of that sex, and among females to 13·736 per 1000, both these rates

being also 5 per cent. below the respective quinquennial averages. Compared with the average in the previous five years, there has been in each county group a fairly uniform fall in the general death-rate of each sex. According to the experience of 1908, which is confirmed by that of former years, the mortality in the urban area exceeds that in the rural at each of the several stages of life. This is especially true respecting children under the age of 10 years and adults at ages from 35 to 65, the greatest differences being observed among children below the fifth year. On the other hand, the rates of 1903–08 agree with those of recent previous years in showing excess of mortality in the rural districts among young adults of both sexes—in men at ages 20–25, and in women at ages 15–35. This feature has been strongly marked in the case of young adults dying from pulmonary tuberculosis.

There is nothing remarkable in the records of mortality from the more familiar infectious diseases, especially in those of children, in the year under notice, the mortality from small-pox, measles, whooping-cough, scarlet fever, and diphtheria being in each case below the average. From a sanitary point of view the fluctuations of mortality from enteric fever are regarded as of exceptional importance. The English death-rate from this disease was equal to 75 per 1,000,000 persons living at all ages and of both sexes, a rate which, with the exception of that for 1907, is the lowest on record, and is below the average for the quinquennium immediately preceding by 13 per 1,000,000. Among males the death-rate was equal to 94 per 1,000,000 of that sex and among females to 56 per 1,000,000. During the 40 years that have elapsed since the disease was first differentiated in these reports enteric fever mortality has fallen to less than a fifth of its former amount—namely, from a rate of 390 per 1,000,000 in 1869 to a rate of 75 per 1,000,000 in 1908. According to the experience of recent years the mortality from enteric fever is found to vary according as a given area contains a large or a small proportion of urban inhabitants. Taking both sexes together, urban mortality from this disease in 1903–07 exceeded rural mortality by 46 per cent. The excess was 55 per cent. among males and only 35 per cent. among females. From the experience of 1908 it would appear that urban and rural areas have shared almost equally in the saving of life that is represented by the fall in the death-rate. In the urban areas the decrease has been greatest among females; in the rural it was shared equally by each sex. Both in the year 1908 and in the previous quinquennium the male rates of mortality from enteric fever exceeded the female rates at all periods of life above the age of 15 years. As in the previous year the highest mortality in both sexes was observed between the ages of 25 and 35 years.

From an interesting table we learn that among registration counties with populations exceeding 100,000 the highest crude rates of enteric fever mortality were 146 in Durham, 136 in Norfolk, 133 in Cumberland, 131 in Monmouthshire, 125 in Lancashire, and 105 in the West Riding of Yorkshire. In the county of Durham mortality was excessive in the districts of Sedgefield, Auckland, Lanchester, Easington, Houghton-le-Spring, and Chester-le-Street. The greater part of the county of Durham is included in the "northern area of high enteric fever mortality" which has in recent years become noteworthy in these reports. In this area the mean death-rate from enteric fever in the year under notice was 187 per 1,000,000, against an average rate of 169 per 1,000,000 in the previous five years. In the districts of Auckland, Easington, and Houghton-le-Spring the rates in 1908 exceeded 300 per 1,000,000. The high rate in Norfolk was due to excessive mortality in the city of Norwich, and that in Cumberland to an epidemic in the borough of Workington. In Lancashire several districts still showed high rates, while in the West Riding of Yorkshire the contiguous districts of Pontefract, Hemsworth, Barnsley, and Rotherham experienced a mortality greatly in excess of that in the remainder of the county.

(To be continued.)

THE LANCET COMMISSION ON RINGWORM.—In the reports of our inquiry into the prevalence and treatment of ringworm in the metropolis it ought to have been mentioned that at Sutton Dr. T. Colcott Fox is associated in the treatment with, and assisted by, Dr. H. G. Adamson and Dr. H. G. Critchley.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 7th, 1832.

CASE OF CHOLERA AT SUNDERLAND, WITH AN ANALYSIS OF THE BLOOD, TAKEN FROM THE PATIENT.

BY WM. REID CLANNY, M.D., &c., &c. *Sunderland.*

To the Editor of THE LANCET.

SIR,—Agreeably with your request, I send you a case of Cholera, attended by Mr. Embleton of Sunderland, and also the results of my analysis of the blood.

(The case was that of Elliot Todd, aged 33, who was attacked on December 12th at 2 o'clock A.M., and died at 7 P.M. the same day.)

ANALYSIS OF THE BLOOD.

This blood, on applying the tongue to it, had no taste, nor any particular smell. I also tasted it again, sometime after it had been drawn. I afterwards tasted the colouring matter, the coagulated albumen, and the fibrin, but in them I found no taste, nor any smell. It contained no gases of any description; was black as tar. I followed the plan which I have taken the liberty of recommending my professional brethren to pursue in the investigation of typhus and other diseases, and which I intend henceforth, for many reasons, to pursue.

I shall give the results of an analysis of the blood of one of our sailors which was taken in October last. This blood contained one cubic inch of carbonic acid in the 16 ozs. which were taken.

	The Sailor.		Elliot Todd.
Water	756	.....	644
Albumen, coagulated	121	.....	31
Colouring matter	59	.....	253
Free carbon	32	.....	66
Fibrin pressed and dried	18	.....	6
Muriates of soda and potassa, carbonate of soda and animal extraction	14	.....	0
	1000		1000

I think it will be readily understood that as I did not see this case, it will be out of my power to make any comment upon it. The results of the analysis are most instructive, and by the medical philosopher must be regarded with astonishment. The blood in this case possesses only two ounces of serum, which was like serum of healthy blood in appearance. I am, yours, &c.,

Sunderland, Dec. 31, 1831. W. REID CLANNY.

BRITISH MEDICAL BENEVOLENT FUND.

AT the December meeting of the committee 20 cases were considered and grants amounting to £182 made to 17 of the applicants, two cases being passed over and one postponed for further inquiry. Appended is an abstract of the cases assisted:—

Widow, aged 66 years, of M.R.C.S., L.S.A. Practically unprovided for at recent death of husband, and children only able to give very slight and irregular assistance. Voted £12.

M.D. Edin., aged 68 years. Used to have a large practice in Scotland but lost his savings by becoming security for relations. Now suffers from an incurable complaint. Voted £10, in two instalments, with leave to apply again in six months.

Daughter, aged 54 years, of late M.R.C.S., L.S.A. Has exhausted small capital in the attempt to support herself by keeping a lodging house and is now penniless and in arrears with her rent. Voted £12.

Widow, aged 38 years, of late M.D. R.U.I. Quite unprovided for at husband's death about a year ago and is endeavouring to obtain a post to which she can take her only child, aged 9 months. Voted £10.

Widow, aged 64 years, of L.R.C.P., L.R.C.S. Edin. Permanently incapacitated by the results of rheumatism and dependent on a sister who is a teacher. No children. Voted £12.

M.R.C.S., aged 81 years. Practised for 44 years in one place in the South-west of England, but was obliged to give up on account of the infirmities of age. Only income a small Poor-law superannuation allowance. Children unable to help. Voted £12.

Widow, aged 74 years, of M.R.C.S., L.S.A., whose capital was

exhausted by an illness lasting many years. Only income an old age pension of 5s. per week. Relieved once, £12. Voted £12.

Widow, aged 44 years, of L.R.C.P., L.R.C.S. Edin. Is a permanent invalid. No income; children only able to give very slight and irregular help. Relieved 14 times, £160. Voted £12.

Widow, aged 50 years, of L.F.P.S. Glasg. Is physically unfitted for hard work and dependent on children who are barely self-supporting. Relieved six times, £58. Voted £12.

Widow, aged 48 years, of M.R.C.S. Quite unprovided for at husband's death a year ago after a long illness; is endeavouring to establish a boarding house. No children. Voted £10.

Widow, aged 45 years, of L.R.C.P., L.R.C.S. Irel. Husband's savings exhausted by a long illness. Is employed as a parish nurse, but only receives a very poor salary. Relieved three times, £15. Voted £5.

Daughter, aged 63 years, of late M.R.C.S. For 28 years acted as a companion, but was obliged to give up work on account of failing eyesight and other infirmities. Is dependent on this Fund and a little occasional help from friends. Relieved five times, £60. Voted £12.

Widow, aged 65 years, of M.R.C.S. Eng., L.R.C.S. Edin. Income £20 a year from a small house which is frequently unlet. No children. Health indifferent. Relieved ten times, £114. Voted £12.

Widow, aged 39 years, of L.R.C.P. Lond. Supported herself as a working housekeeper for some years, but developed phthisis, and is now quite broken down and only fit to go to a sanatorium. Relieved twice, £10. Voted £10, with leave to apply again in six months if necessary.

Daughter, aged 62 years, of late M.D. Edin. Maintained herself as a governess or companion until five years ago, but was then obliged to give up in order to attend to an elder sister who is a permanent invalid. Only income £10 a year from a friend. Relieved four times, £48. Voted £12.

Widow, aged 70 years, of L.F.P.S. Glasg. After husband's death obtained employment as a nurse for several years, but is now incapacitated by the infirmities of age. No income, and dependent on two daughters who can ill afford to help. Relieved once, £12. Voted £12.

Daughter, aged 32 years, of late M.R.C.S., L.R.C.P. Quite unprovided for at death of father a year ago. Has a post as useful companion, but requires a little help for unavoidable expenses. Relieved once, £8. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

Public Health.

THE HEALTH OF THE COLONY OF NATAL.

WHEN in years to come the historian sits down to pen the records of the British Empire and to discuss its influence upon civilisation and progress he will find himself devoting no small space to the effects which the advent of the Englishman exercised upon the native races with which he was brought in contact in different parts of the world. And the story will be interesting and instructive, although, if truthful, not always happy in so far as the aborigines were concerned. In not a few instances the narrator's pen will have to recount the disappearance of aboriginal races. He will have to tell the story of the dwindling away of the Tasmanians under the dominant influence of the Englishman; how the presence of this powerful people changed the habits of the natives until, through loss of fertility, they were completely eliminated; and he will tell, too, of the gradual decline in numbers of the Australian native and of those gallant New Zealanders, the Maoris. Conversely, too, he will have to record the manner in which the English themselves went down on the African Gold Coast and in many other places, and how the negro and the Mongolian, as well as the Indians, increase and multiply under the beneficent rule of the Briton. But the history will show that the laws of health and the knowledge of how to live have been spread to all parts of the globe by the Briton and by the agency of colonial expansion. Our influence in promoting the growth of sanitation in Europe and in other parts, such as Egypt, which are frequented by English visitors is, of course, a matter of common knowledge and experience to all those who travel; but the same forces have been at work in our colonies and with more direct benefit to the Empire.

The last annual report of the health of the colony of Natal by its medical officer, Mr. Ernest Hill, is a very interesting document. The European population of this colony for 1908 was estimated at just under 100,000, the Indian immigrants at 104,120, "other Indians" at 17,820, while the estimation for the natives was 976,222, figures which bring out the relative values of the several sections at the present time. As regards the outlook for the future of these several divisions we turn to a birth-rate of 27·99 per 1000 amongst the Europeans, of 32·9 per 1000 amongst Indian immigrants, and 38·98 per 1000 amongst the natives, exclusive of Zulus. As compared with these birth-rates we have, per 1000 in each instance, a death-rate of 8·87 amongst Europeans, of 18·69 amongst Indian immigrants, and of 18·57 amongst natives. The infantile mortality was for Europeans 77·72, and for Indian immigrants 127·33 per 1000 births in each instance. Among the infectious diseases measles and whooping cough were exceptionally prevalent, both these diseases having, Mr. Hill adds, been largely spread by school influence, while no fewer than 40 deaths amongst Indians are attributed to the ravages of syphilis. Of these deaths 32 were amongst infants and young children. In connexion with venereal diseases there appears to be in force an unfortunate edict that Indians generally and natives in Government employ are not entitled to free treatment, a fact which seems in large measure responsible for the ravages of these maladies.

In malaria there has been a marked fall, although it is by no means clear what forces have acted in bringing about such decline. Mr. Hill thinks it probable that the epidemic wave which swept over Natal in 1905 has now receded much in the same fashion as that which occurred in connexion with the wave of 1868–1872. From pulmonary tuberculosis there was a death-rate of 46 per 100,000 amongst Europeans and 215 per 100,000 amongst Indian immigrants, there having been amongst Europeans a marked fall in the phthisis death-rate during recent years, a fact which appears to be largely, if not mainly, due to the diminished entry of persons already suffering from this disease. There is apparently the greatest difficulty in securing early cases amongst the Indian immigrants, and this fact, together with the circumstance that the coloured people would leave a sanatorium directly they felt at all better, does not, Mr. Hill thinks, render the building of a sanatorium a very hopeful proceeding. Ankylostomiasis caused the deaths of 29 Indians in 1908 as against 18 in 1907, and there was an increase in hospital from 67 cases in 1907 to 226 in 1908, a fact due to greater vigilance on the part of the medical officers and not to increased prevalence. Mr. Hill draws attention to the fact that only a relatively small proportion of those harbouring the parasites are at any one time affected in health, and on the examination of the fæces of three sets of coolies on arrival from India eggs were demonstrated in 52, 92, and 42 per cent. respectively. Efforts are now being directed towards dealing with cases already in the country and for preventing the importation of infected persons from oversea. There were only two cases of small-pox in the colony in 1908, but there seem to be financial difficulties in the way of attaining the general vaccination of the natives, the sum allotted only affording a fee of about 6*d.* for every case vaccinated—obviously a ludicrous provision. In the matter of general sanitation, the condition of the villages is regarded as being satisfactory, although there are difficulties in the matter of adequate scavenging. The water-supplies are regarded generally as adequate and the water is of fairly satisfactory quality.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Aberdeen.—Dr. Matthew Hay, in his health report for 1908, refers first to population, birth-rate, and marriages. Aberdeen has a high illegitimacy rate compared with most large towns. A mothers' and babies' club has been initiated. The club works in coöperation with the public health department, and has been attended with almost embarrassing success. A special investigation regarding the causes of infantile mortality in the city was carried on in 1907 and again in 1908 for purposes of comparison. Dr. Hay regards an increased number of play and recreation grounds in the city as needful for the children. With regard to the Daylight Saving Bill, he remarks that those in sedentary occupations especially would have benefited greatly by the Bill, which seems now to have received its quietus, but that Parliamentary sanction is not necessary to the better arrangement of the hours of sedentary occupations. He suggests that such trades as dressmaking and millinery should start an hour earlier and stop an hour earlier in the summer months, which would be an undoubted advantage to the health of those engaged in them. Dr. Hay finds that in the mortality from tuberculous diseases during the year the remarkable decline continued which has been going steadily on for the last 30 to 40 years. The mortality from cancer showed a slight decline on the preceding year; it nevertheless was nearly twice as high as for the years 1866–1875. If the proportion of unvaccinated children continues as high in the future as it was during the year 1908 there will soon

be a large infusion of unprotected persons in the city, with the consequent danger of an epidemic. Diphtheria has been showing a tendency to increase. A similar increase is noted in other large towns without any adequate explanation. Antitoxin has been given to many hundreds of cases in large doses in the City Hospital without a single bad result. Dr. Hay refers to an outbreak of epidemic gastro-enteritis, and remarks that it is important for dairymen to remember that recent legal decisions appear to show that where any illness arises from milk that has become contaminated by the neglect of proper precautions at the dairy, the dairyman may be successfully sued for damages. As regards the projected new water-supply, Dr. Hay remarks that the waters of the Avon are of exceptional purity. The present water from the Dee enjoys a fictitious reputation for purity on account of its containing less dissolved matter than the average supply of other towns; but repeated bacteriological examinations show that the bacillus coli is almost constantly present in the water in a proportion far above that met with in uncontaminated waters. The meteorological averages for the ten years show February to be the coldest month in Aberdeen and July the warmest. According to the average for the five years ending 1907, the most fatal month for the population is January and the least fatal July.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 7744 births and 5276 deaths were registered during the week ending Jan. 1st. The annual rate of mortality in these towns, which had been equal to 15·0 and 15·4 per 1000 in the two preceding weeks, further rose to 16·7 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 14·4 per 1000, against 15·6, the mean rate in these 76 towns during the corresponding quarter of the four preceding years 1905–8. The mean annual death-rate in London last quarter did not exceed 14·1 per 1000, and was 0·3 below the mean rate in the 76 towns. The lowest annual rates of mortality recorded in the 76 towns last week were 4·5 in Handsworth and 7·0 in Bury and in King's Norton; the rates in the other towns ranged upwards, however, to 24·8 in Huddersfield, 25·1 in Ipswich, 25·8 in Hanley, and 27·3 in Barrow-in-Furness. In London the recorded death-rate last week was equal to 16·2 per 1000. The 5276 deaths registered in the 76 towns last week showed a further increase of 422 upon the numbers in the two preceding weeks, and included 294 which were referred to the principal epidemic diseases, against 250 and 273 in the two preceding weeks; of these 294 deaths, 109 resulted from whooping-cough, 51 from diphtheria, 50 from measles, 34 from scarlet fever, 34 from diarrhœa, and 16 from "fever" (principally enteric), but not one from small-pox. The annual rate of mortality from these epidemic diseases last week was equal to 0·9 per 1000, corresponding with the rate in the previous week. No death from any of these diseases was registered last week in Willesden, Tottenham, Hornsey, St. Helens, or in 8 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·7 in Swansea, 3·3 in Barrow-in-Furness, 4·3 in Birkenhead, and 6·1 in Hanley. The fatal cases of whooping-cough, which had steadily increased the five preceding weeks from 61 to 78, further rose last week to 109, and caused annual death-rates equal to 1·5 in Walthamstow and in Smethwick, 1·6 in Derby, and 2·3 in Hanley. The 51 deaths from diphtheria showed an increase upon recently weekly numbers, and included 15 in London and its suburban districts, 4 in Hanley, 6 in Liverpool, 5 in Manchester and Salford, 3 in Barrow-in-Furness, 4 in Hull, and 2 in Middlesbrough. The 50 fatal cases of measles differed but slightly from the numbers in recent weeks, but caused death-rates equal to 1·6 in Swansea, 2·1 in Northampton, and 3·4 in Birkenhead. Of the 34 deaths from scarlet fever, 8 occurred in London, 3 in Birmingham, and 6 in Manchester and Salford. The 34 deaths attributed to diarrhœa showed a further decline from the numbers in recent weeks. The 16 deaths referred to "fever" were fewer than in any recent week. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined in the 11 preceding weeks from 2810 to 2361, were 2362 on Saturday last; 244 new cases of this disease were admitted to these hospitals last week, against 254 and 224 in the two preceding weeks. The Metropolitan Asylums Hospitals contained 4 cases of small-pox on Saturday last. Of the 1502 deaths registered in London last week 360 were referred to pneumonia and other diseases of the respiratory system, against numbers declining from 432 to 332 in the four preceding weeks; these 360 deaths were 55 below the corrected average number in the corresponding week of the five years 1904–08. The causes of 54, or 1·0 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Leeds, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Leicester, Salford, and in 45 other smaller towns; the 54 uncertified causes of death in the 76 towns last week included 9 in Liverpool, 8 in Birmingham, 7 in Sheffield, 5 in Sunderland, and 3 in Rochdale.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 781 births and 675 deaths were registered during the week ending Jan. 1st. The annual rate of mortality in these towns, which had been 23·8, 19·6, and 19·5 per 1000 in the three preceding weeks, further declined to 18·9 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Scotch towns averaged 17·7 per 1000, and exceeded by 3·3 the mean rate during the same period in the 76 largest English towns. The annual death-rates last week in these Scotch towns ranged from 12·5 in Paisley and 13·5 in Aberdeen, to 23·7 in Dundee and 23·8 in Greenock. The 675 deaths from all causes in the eight towns last week showed a further decline of 22 from the numbers in recent weeks, and included 86 which were referred to the principal epidemic diseases, corresponding with the number in the previous week. These 86 deaths were equal to an annual rate of 2·4 per 1000; the mean death-rate from the same diseases in the 76 English towns last week did not exceed 0·9 per 1000. The 86 deaths from these diseases in the Scotch towns last week included 63 from measles, 9 from diarrhœa, 6 from diphtheria, 3 from scarlet fever, 3 from whooping-cough, and 2 from "fever," but not one from small-pox. The fatal cases of measles, which had been 64, 46, and 42 in the three preceeding weeks, rose again to 63 last week, of which 49 occurred in Glasgow and 13 in Edinburgh. The 9 deaths attributed to diarrhœa showed a decline of 4 from the number in the previous week, and included 4 in Aberdeen and 3 in Glasgow. The 6 fatal cases of diphtheria, of which 4 were recorded in Glasgow, also showed a decline, as did the 3 deaths both from scarlet fever and whooping-cough, all of which occurred in Glasgow. Only 2 deaths in the eight towns were referred to "fever," of which 1 from enteric fever was recorded in Glasgow, and 1 from cerebro-spinal meningitis in Edinburgh. The deaths referred to diseases of the respiratory system in the eight towns, which had been 275, 215, and 173 in the three preceding weeks, rose again last week to 181, and exceeded by 61 the number registered in the corresponding week of last year. The causes of 13, or 2·0 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 1·0 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,142,308 persons, 684 births and 557 deaths were registered during the week ending Jan. 1st, 1910. The mean annual rate of mortality in these towns, which had been equal to 23·2, 21·7, and 18·2 per 1000 in the three preceding weeks, rose to 25·4 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these Irish towns averaged 19·1 per 1000, whereas the mean rate during the same period did not exceed 14·4 in the 76 largest English towns and 17·7 in the eight principal Scotch towns. The annual death-rate during last week was equal to 25·9 in Dublin, 25·9 in Belfast, 23·8 in Cork, 21·7 in Londonderry, 21·9 in

Limerick, and 11·7 in Waterford; the mean annual rate last week in the 16 smallest of the Irish town districts was equal to 28·0 per 1000. The 557 deaths from all causes in the 22 town districts during the week exceeded by 158 the number registered during the preceding week, and included 32 which were referred to the principal epidemic diseases, against 26 and 18 in the two preceding weeks; these 32 deaths were equal to an annual rate of 1·5 per 1000; in the 76 English towns the mean rate from the same diseases last week did not exceed 0·9 per 1000, but in the eight principal Scotch towns it was equal to 2·4 per 1000. The 32 deaths from these epidemic diseases in the Irish towns last week included 18 from whooping-cough, 5 from diarrhœa, 5 from "fever," 2 from scarlet fever, and 2 from diphtheria, but not one from small-pox. The 18 fatal cases of whooping-cough exceeded the numbers in recent weeks, and included 13 in Belfast. Of the 5 deaths attributed to diarrhœa, 4 occurred in Dublin. The 5 deaths referred to "fever" included 4 certified as enteric and one as typhus; of the 4 deaths from enteric fever 2 occurred in Dublin and 1 each in Cork and Drogheda, while the fatal case of typhus was returned in Galway. Both the deaths from scarlet fever occurred in Dublin. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 83 and 134 in the two preceding weeks, further rose to 183 in the week under notice. The causes of 29, or 5·2 per cent of the deaths registered last week in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 1·0 per cent., and the eight Scotch towns 2·0 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Staff-Surgeons: R. W. G. Stewart, to the *Melpomene*, on recommissioning; and E. C. Sawdy, to the *Hampshire*.

ARMY MEDICAL SERVICE.

Colonel John M. Jones is placed on retired pay (dated Jan. 2nd, 1910). Lieutenant-Colonel Thomas J. R. Lucas, C.B., from the Royal Army Medical Corps, to be Colonel, vice J. M. Jones (dated Jan. 2nd, 1910).

ROYAL ARMY MEDICAL CORPS.

Major M. Swabey is appointed specialist in midwifery and diseases of women and children in the 5th (Mhow) Division. Lieutenant-Colonel G. H. Barefoot is appointed to command the Station Hospital, Bareilly, and Lieutenant-Colonel T. B. Winter to command the Station Hospital, Chakrata. Captain A. A. McNeight, Station Hospital, Cawnpore, is appointed to the medical charge of the Harness and Saddlery Factory from Nov. 16th, 1909, in addition to his other duties. He will also hold charge of the Department Followers' Hospital at that place as a collateral duty.

INDIAN MEDICAL SERVICE.

It is understood that Lieutenant-Colonel Grainger is to be confirmed as principal medical officer, Burma Division, on the retirement of Colonel McKay, C.B., C.I.E. On his return from leave, Lieutenant F. N. Windsor resumed charge of the duties of chemical examiner and bacteriologist to the Government of Burma from Captain T. F. Owens, whose services are replaced at the disposal of the Government of India. On return from leave, Captain D. S. G. Knapp is appointed superintendent of the Insein Central Jail in place of Lieutenant F. G. Fraser, whose services are placed at the disposal of the Government of Bombay in the Jail Department. Captain Cox reverts to military duty. Captain McKendrick is granted two months' leave. Captain C. H. Cross, on return from Chitral, is attached to the 15th Sikhs for duty.

ROYAL NAVAL VOLUNTEER RESERVE.

David Duncan Fraser Macintyre has been appointed Surgeon (dated Dec. 30th, 1909).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Supplementary List: The undermentioned to be Lieutenants (on probation) (dated Nov. 29th, 1909):—Philip Walter Mathew and Aston Ridley Dale.

TERRITORIAL FORCE.

Royal Garrison Artillery.

Cornwall (Duke of Cornwall's): Surgeon-Lieutenant Edwyn G. Andrew to be Surgeon-Captain (dated Oct. 5th, 1909).

Infantry.

7th and 8th Battalions (Leeds Rifles), The Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Captain Alexander Mackenzie resigns his commission (dated Nov. 20th, 1909).

Royal Army Medical Corps.

1st South Midland Mounted Brigade Field Ambulance: Douglas Martin Spring to be Lieutenant (dated Oct. 30th, 1909).

Yorkshire Mounted Brigade Field Ambulance: George Scott Williamson to be Lieutenant (dated Nov. 1st, 1909).

3rd London (City of London) Field Ambulance: Supernumerary Lieutenant Reginald M. Vick is restored to the establishment (dated Dec. 8th, 1909).

2nd Lowland Field Ambulance: Lieutenant James K. Patrick to be Captain (dated Dec. 8th, 1909).

1st North Midland Field Ambulance: Lieutenant Edwin A. Wraith to be Captain (dated Nov. 26th, 1909).

2nd North Midland Field Ambulance: Major William P. Peake to be Lieutenant-Colonel (dated Nov. 5th, 1909).

1st South Midland Field Ambulance: Lieutenant George W. Craig to be Captain (dated Oct. 8th, 1909).

3rd Northern General Hospital: Major William S. Porter to be Lieutenant-Colonel (dated April 18th, 1909).

Attached to Units other than Medical Units.—Lieutenant David H. Weir to be Captain (dated August 10th, 1909). Captain Hugh N. A. Taylor is restored to the establishment (dated Sept. 6th, 1909). Lieutenant Henry Goudie to be Captain (dated Nov. 5th, 1909). Captain Charles A. Goullet to be Major (dated Dec. 5th, 1909).

For attachment to Units other than Medical Units.—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Francis John Walker, from the 5th Battalion, The Lincolnshire Regiment, to be Lieutenant-Colonel, with the honorary rank of Surgeon-Colonel (dated Sept. 1st, 1909).

VOLUNTEERS.

Royal Garrison Artillery (Volunteers): 1st City of London: Surgeon-Captain Ernest H. Tipper, not having signified his wish to serve in the Territorial Force, is struck off the strength of the regiment (dated March 31st, 1909).

THE TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force who have been duly recommended for the same under the terms of the Royal Warrant dated August 17th, 1908:—

Infantry.

4th Battalion, The Duke of Edinburgh's (Wiltshire Regiment): Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel Herbert Paget Tayler.

Royal Army Medical Corps.

1st West Lancashire Field Ambulance: Lieutenant-Colonel Frederic Joseph Knowles.

2nd Lowland Field Ambulance: Lieutenant-Colonel Alexander Dryden Moffat; Major William Henry Brown, attached to the Northumberland (Fortress) Royal Engineers; Major and Honorary Surgeon-Lieutenant-Colonel Frederick Vasey Adams, attached to the 5th Battalion, The Cameronians (Scottish Rifles); Lieutenant-Colonel and Honorary Surgeon-Colonel David Lennox, attached to the 4th (City of Dundee) Battalion, The Black Watch (Royal Highlanders).

DEATHS IN THE SERVICES.

Lieutenant-Colonel Campbell Mellis Douglas, V.C., R.A.M.C. (retired), on Dec. 31st, 1909, aged 69. He entered the service in 1862 as assistant surgeon, became surgeon in

1873, surgeon-major in 1876, and retired in 1882. He was decorated with the Victoria Cross, together with four privates of the 24th Regiment, "for the very gallant and daring manner in which, on May 7th, 1867, they risked their lives in manning a boat and proceeding through a dangerous surf to the rescue of some of their comrades, who formed part of an expedition which had been sent to the island of Little Andaman, by order of the Chief Commissioner of British Burmah, with the view of ascertaining the fate of the commander and seven of the crew of the ship *Assam Valley*, who had landed there, and were supposed to have been murdered by the natives. The officer who commanded the troops on the occasion reports: 'About an hour later in the day, Dr. Douglas, 2nd Battalion 24th Regiment, and the four privates referred to, gallantly manning the second gig, made their way through the surf almost to the shore, but finding their boat was half filled with water, they retired. A second attempt made by Dr. Douglas and party proved successful, five of us being safely passed through the surf to the boats outside. A third and last trip got the whole of the party left on shore safe to the boats.' It is stated that Dr. Douglas accomplished these trips through the surf to the shore by no ordinary exertion. He stood in the bows of the boat and worked her in an intrepid and seamanlike manner, cool to a degree, as if what he was then doing was an ordinary act of everyday life. The four privates behaved in an equally cool and collected manner, rowing through the roughest surf when the slightest hesitation or want of pluck on the part of any one of them would have been attended by the gravest results. It is reported that seventeen officers and men were thus saved from what must otherwise have been a fearful risk, if not certainty of death." He was also awarded the silver medal of the Royal Humane Society for the same service.

THE MEDICAL CORPS OF THE UNITED STATES ARMY.

It has long been a problem with the official heads of the medical department of the army how to keep its ranks filled with qualified surgeons, but the restrictions have been so great, both in compensation, relative rank, and opportunities for promotion, that comparatively few qualified graduates sought admission to the service. The numerical corps authorised by law had so dwindled that it entirely failed to meet the needs of the service. The failure to attract applicants excited alarm in the staff lest the medical staff should be reduced to a minimum. In the year 1907, of 64 applicants but 10 were accepted for the Army Medical School and subsequently commissioned. During the same period, from October, 1906, to October, 1907, 11 vacancies occurred, thus showing that the annual loss to the corps exceeded the supply, and proving that unless Congress made the position of surgeon more attractive to the profession the corps would in the course of time become extinct by natural causes. The act of Congress in 1908 reorganised the medical department, and provided substantial increase of pay and conditions favourable for promotion. Four months after the passage of the Reorganisation Bill an examination of candidates was held, and although but little opportunity had been given to inform medical students of the changes effected in the position of the members of the medical staff the applicants numbered 128, and of those 25 were accepted. The records show that in January and July, 1909, 270 candidates were examined, and 57 were accepted. The attendance at the Army Medical School at Washington in 1909 was 58, as compared with 33 in 1908 and 10 in 1907.

THE HOSPITAL FUNDS.—With a view to lightening as far as possible the labour of hospital officials charged with the duty of supplying manuscript information in connexion with applications for grants, the King Edward's Hospital Fund, the Metropolitan Hospital Sunday Fund, and the Hospital Saturday Fund have decided that their questions as to "statistics," "income and expenditure," and "salaries and wages" at hospitals, convalescent homes, and similar institutions shall be uniform in wording, so that the replies drafted for one fund can be copied, when the time comes, on to the forms issued by the other two. This will apply only to these particular questions and not to inquiries upon other subjects. Nor will it apply to nursing institutions or dispensaries. A very complete "index of classification" of all items of hospital expenditure has been published.

Correspondence.

"Audi alteram partem."

ASEPSIS AND ANTISEPSIS.

To the Editor of THE LANCET.

SIR,—We have read with interest Sir W. Watson Cheyne's "Remarks on the Treatment of Wounds in Connexion with the Recent Results obtained at St. George's Hospital," published in THE LANCET of Jan. 1st. Would you, Sir, kindly allow us to make a few comments on his paper?

It may be worth while recording how the idea of compiling the statistics, contained in our paper of Nov. 27th, 1909, arose. We both came to St. George's Hospital from Cambridge, one of us in 1895, and the other in 1902. Many of our friends and contemporaries came at the same time to other London hospitals. Each of us in turn found a healthy spirit of rivalry to exist between the house surgeons at the different London hospitals. Our friends told us of the astonishing results obtained at their respective hospitals, and in many we were given to understand that suppuration was practically unknown. We therefore made visits to the hospitals concerned and went round the wards with our friends, and the results we saw were not quite in accordance with what we had been led to expect. The change which occurred two years ago at St. George's Hospital seemed to us a favourable occasion for compiling definite statistics on the subject.

Sir Watson Cheyne writes: "The essence of the question at issue is whether the treatment of wounds shall be looked upon as a bacteriological problem or not." Personally we know of no surgeon who does not regard the treatment of wounds as a bacteriological problem, and a very complex one. It often happens, however, that there is more than one solution of a problem, but our paper did not attempt to discuss whether the "antiseptic" or the so-called "aseptic" method afforded the better solution. Time alone will show whether one or both of these methods is scientifically sound. Perhaps both may be superseded. As regards the value of any method, it is easy to point out possible defects in the carrying out of that method, but are these defects in technique arguments against the method itself?

We must take strong exception to Sir Watson Cheyne's summary paragraph "if these are the best results that can be got by the recent aseptic methods, the sooner they are abandoned the better for the well-being of the patient and the peace of mind of the surgeon." In our paper we said that in no case was convalescence materially prolonged, nor did a septic infection prove fatal. For instance, after an operation for radical cure of hernia the stitches may be taken out by the house surgeon about the seventh day; round one stitch is a drop of pus which is swabbed away as the stitch is removed. About the tenth day the wound is seen by the surgeon and found to be perfectly healed. In such a case the well-being of the patient is unimpaired and the surgeon retains his peace of mind. Yet we include many similar cases as "septic" in our statistics.

The whole crux of this question is the exact meaning which the words "septic" and "septic infection" convey to the mind of the investigator. We laid down for ourselves certain rules in compiling our statistics; but we do not doubt that anyone else dealing with these identical records might bring out different figures according to the rules which he chose to lay down for himself. Both of us regard Sir Watson Cheyne's results with unbounded admiration, and we think that they reflect that healthy enthusiasm of which his house surgeons afford such shining examples. We did not say in our paper that we were satisfied with our results; yet, in spite of Sir Watson Cheyne's personal statistics (and, as is well known, personal statistics are better than average statistics), we still believe

that at the present time a practitioner will not be far wrong who points out to his patient that of 100 "clean" cases operated upon some 93 will have wounds which heal without a trace of septic infection; some five or six will have some small spot of infection which will neither retard convalescence nor interfere with the well-being of the patient, nor make the surgeon uneasy; some one or two will have their convalescence retarded, but very rarely will death or ill-effects to the patient ensue.

In conclusion, and in justice to our hospital, we must insist that it is scarcely fair to compare the work of seven surgeons on the staff of a hospital—that is, the whole surgery of that hospital—with the work of one surgeon reported upon by his own house surgeons.—We are, Sir, yours truly,

HERBERT S. PENDLEBURY.
Jan. 5th, 1910. IVOR BACK.

To the Editor of THE LANCET.

SIR,—Sir W. Watson Cheyne appears to see in the comparison of two relatively small sets of figures a complete vindication of an obsolescent system of wound treatment. Before such a conclusion can be accepted as convincing several possible sources of error must be eliminated. The first and greatest fallacy lies in comparing the results obtained from the uniform practice of a single surgeon with those shown in the collected statistics of a large number of different operators. Almost any man who has made a speciality of a particular operation can find cause for self-congratulation when he compares his own results with those of a large number of other surgeons collected from different sources. Sir Watson Cheyne may be said to have made a speciality of one particular form of wound treatment, and the results of his personal methods seem to be particularly gratifying. His thousand odd cases, however, should be compared with a similar number in the personal practice of some surgeon who has in like manner made a special study of the "so-called" aseptic methods.

Sir Watson Cheyne, whilst emphasising his use of chemicals in the preparation of his materials, does not say whether or not he makes a practice of bringing those chemicals into actual contact with the living tissues, which is, after all, the essential point of difference between the two "schools." I do not think that he presents this difference quite fairly. All surgeons, if they think at all, must regard the treatment of a wound as a bacteriological problem, but I do not think that those who practise "asepsis" do, as he says, "regard the action of the tissues as the essential element and the bacteriological question as of secondary importance." On the contrary, their first care is to keep bacteria out of the wound, and at the same time, by avoiding as far as possible the destruction of living cells which is so easily brought about by the action of chemical solutions, to give the wound the best chance of dealing with any organisms which, in spite of all care, may accidentally have gained access to it. Few, if any, wounds are aseptic in the strictly bacteriological sense, as has been shown by Dudgeon and myself.[1]

The "antiseptic" school, on the other hand, maintains that chemicals should be poured upon a clean wound in the hope of killing organisms which may have gained access to it during the operation. That, I take it, is the essential difference between the two methods, and if Sir Watson Cheyne, whilst using chemicals for the disinfection of all his material, is yet careful to avoid their destructive action upon the living tissues, I for one should regard him as an "aseptic" surgeon. The methods by which he seeks to sterilise his materials are chemical; those of the "aseptic" school are mechanical and thermal. The essential difference between his methods and those which he affects to despise would therefore be reduced, not to one of wound treatment at all, but to one of preparation for operation. If, on the other hand, he drenches his clean wounds with chemicals I fail to see that he is directing his energies to the "bacteriological requirements of the case." Further, I should like some information as to the criteria upon which his wounds are divided into infected and non-infected. Do they rest upon bacteriological examination, upon the presence or absence of visible pus, upon the clinical signs of inflammation, or upon the temperature chart? Again, who were the judges of infection or non-infection? If the results are based upon his own personal observation the value of the figures would be immeasurably greater than if they are based upon the observations of the 17 house surgeons, for not only would those observations in the latter event lack the essential element of uniformity, but they would also tend to be modified by that healthy spirit of rivalry to which he alludes.

Finally, Sir Watson Cheyne, insisting upon the personal element, justly attributes the failures of his own methods to human frailty, but is only too anxious to throw the onus of "aseptic" failures upon the method rather than upon its exponents. Moreover, whilst stating his opinion that his 1·8 per cent. of suppuration is not the best that could be obtained by chemical methods, he appears to take it for granted that 7·2 is the lowest percentage of suppuration that can be obtained by "aseptic" methods. This, of course, is far from being the case. There are other points in Sir Watson Cheyne's paper which call for comment, but space forbids my dealing with more than one. Speaking of tuberculous abscesses, he is apparently content to take the "opinion of a distinguished orthopædic surgeon" that the opening of such abscesses is the cause of the death of numbers of children (presumably when treated "aseptically"), and, without verification (inasmuch as it is "just what he would expect"), to found upon that opinion a charge against "aseptic" surgery which is entirely without justification. During the year 1909 64 psoas and other tuberculous abscesses were treated at St. Thomas's Hospital by incision, flushing with saline solution, and closure without drainage. Three only of these failed to heal by first intention, a proportion of successes which, I venture to believe, has never been excelled by chemical methods.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 1st, 1910. PERCY SARGENT.

[1] THE LANCET, Nov. 17th, 1906, p. 1335.

THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTION OF INSOLUBLE PREPARATIONS OF MERCURY AS CONTRASTED WITH THE INUNCTION METHOD.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 25th, and in reply to Dr. G. Pernet's article of July 24th, 1909, I wrote an article, "The Treatment of Syphilis by Intramuscular Injections of Insoluble Salts of Mercury as Contrasted with the Inunction Method: a Critical Rejoinder." On Oct. 9th a letter appeared from Dr. Pernet and on Oct. 16th a joint communication was published on the same subject signed by Dr. Stopford Taylor and Dr. R. W. MacKenna. Speaking of intramuscular injections of insoluble preparations in private practice, Dr. Pernet states "that where full control of the patient could be obtained he found no ill effects ensue after 10 to 12 consecutive weekly injections of doses varying from 7 to 10 centigrammes." I regret that owing to a typewriter's mistake 1 to 10 instead of 7 to 10 centigrammes, as stated by Dr. Pernet, appeared in error, and that the context was curtailed. Further, on p. 924, line 8, the word "monthly" should read "weekly." There was no intention to misquote Dr. Pernet. The proof sheets were not revised, as I had left Woolwich for Malta. The point raised by me, however, is that in regard to insoluble grey oil preparations even as an early, intensive, abortive measure, 10 to 12 consecutive weekly injections of doses varying from 7 to 10 centigrammes (1 to 1½ grains metallic mercury) are inadvisable as judged by army experience. Formerly doses containing 2 grains (14 centigrammes) metallic mercury were used weekly in the army over lengthened periods, but discontinued since the deaths in 1901 in Egypt and elsewhere. Dr. Pernet, speaking of a case of his own treated by a series of 10 to 12 *huile grise* injections (7 to 10 centigrammes metallic mercury),

writes: "The injections have been well borne, although the patient had been liable to pseudo-dysenteric attacks." Are we to understand that this case, cited as already suffering from syphilis and malaria, suffered also from tropical dysentery or from mercurial toxic enteritis?

When speaking of insoluble grey oil preparations (Lambkin's formula) I stated: "As regards my personal experience of this method, I never give it to in-patients now, as I consider other methods much more valuable. I have probably given or seen administered 15,000 injections of insoluble grey oil (Lambkin's formula) to 'out-patients.' I never give more than six weekly injections of 10 minims each of the standardised mercurial cream (Lambkin's formula). This contains one grain metallic mercury in each dose [i.e., 7 centigrammes]. I allow an interval of from two to three months, then another course as above, and so on for two years."

I am at a loss to understand, therefore, why Dr. Stopford Taylor and Dr. MacKenna should place an erroneous construction on my words in their letter by saying: "We are surprised that Major French should lend the weight of his authority to the recommendation 'that weekly insoluble injections of standardised grey oil should not ever be made for over six weeks, and in certain cases four weeks.' ..... We are prompted to wonder whether it is for this reason—viz., inadequate dosage—that ..... 'injections of insoluble salts of mercury ..... have not the same curative action on syphilis in the early stages as ..... inunction or hydrargyrum cum creta with opium.'" I did not refer to a single course, as I previously wrote "courses extending over two years." Colonel Lambkin also advises "just half the dose as soon as the patient has been discharged from hospital." I, too, am prompted to wonder whether *la grippe mercuriale*, diarrhœa, and pseudo-dysenteric attacks which not infrequently occur after too prolonged injection or too large doses of insoluble grey oil might not be avoided by smaller doses, since mercurial enteritis may be accompanied with rapid wasting and heart failure. It was for this reason I suggested 7 centigrammes (metallic mercury 1 grain) as a safe dose in average cases. I consider 14 centigrammes (2 grains metallic mercury) for four weeks in succession, followed by 7 centigrammes (1 grain metallic mercury) for 14 consecutive weeks, and 10 centigrammes twice at intervals of two weeks, as prescribed by Dr. Taylor and Dr. MacKenna, an unwise dose over such a lengthened period. This works out at 25 grains metallic mercury in 22 weeks. Dr. Pernet attributes the deaths in the army in 1900–01 to too large doses—namely, 30 grains, extending over 36 weeks. The dose used by Dr. Taylor and Dr. MacKenna appears to be somewhat similar. I can further state that no orderly ever gives an injection in the army as suggested by Dr. Taylor and Dr. MacKenna, when attempting to explain the regrettable deaths under insoluble preparations.

Dr. Pernet stated in his article of July 24th "that at the Sheffield meeting of the British Medical Association (Dermatological section) in 1908 Professor Neisser of Breslau and he were the only two speakers who were resolutely in favour of the use of the insoluble preparations of mercury." In the recent valuable third report of the Advisory Board for Medical Services on "The Treatment of Venereal Disease and Scabies in the Army," p. 14, it is clearly stated in regard to Professor Neisser's university clinic at Breslau: "For patients in hospital inunctions are mostly employed, five grammes for men and three for women. From 40 to 50 inunctions complete the course. For out-patients injections of soluble salts are largely employed. The insoluble salicylate has given the best results and is now most largely used." Grey oil is not even mentioned. I do not consider, therefore, that Professor Neisser can be so "resolutely in favour" of insoluble preparations to the exclusion of other methods. Captain Dorgan, R.A.M.C., writing in the *R.A.M.C. Journal* in August, 1908, p. 128, when speaking of grey oil, states: "The remainder of my cases showed definite relapses whilst under injections, and I had been giving to all large doses, nearly always more than two grains per week (i.e., 14 centigrammes metallic mercury). My routine was to admit them to hospital and press the dose to the uttermost limit by inunction or hydrarg. c. creta. I maintain that this tolerance could not with safety be approached by injection, knowing, as we do, that the next dose may lead to serious, if not fatal, results."

Mr. Charles Gibbs of the London Lock Hospital stated in evidence at the commission of inquiry "that severe relapses are twice as frequent after injections as after inunctions or pill treatment, and iritis is peculiarly common in the relapse after intra-muscular injection." I beg to differ, therefore, from Dr. Pernet and others who attempt to belittle this independent evidence. I understand that Mr. Gibbs sees most of the out-patient civil hospital syphilis practice in London. He is consequently in an excellent position to impartially judge, since the great bulk of his cases, I am informed, consist of soldiers who have left the army, where injections of insoluble grey oil form the routine method of treatment for out-patients.

Dr. Pernet says "that he has never himself used the mercurial cream as employed in the British army, but French preparations of *huile grise* only," and "that he now uses Lafay's standard preparation." The standardised mercurial cream employed in the British army (Lambkin's cream) is almost identical with Lafay's "*huile grise*." Lambkin's formula, "especially in its later form, closely resembles the grey oil of continental writers." Dr. Pernet, in using Lafay's *huile grise*, would, therefore, appear to have been entertaining an angel unawares. The mercurial content is expressed in terms of metallic mercury, being usually taken as the index of the potency of these preparations. The formulas are: Lang's grey oil (introduced in 1886); mercury, 2; sterilised anhydrous lanolin, 1; sterilised liquid paraffin, 1. All ingredients by weight. Has a specific gravity of 1·50 and consequently 2 minims contain 1½ grains of mercury—that is, 10 centigrammes. A special syringe is used marked in 2 minim doses. *Lafay's* grey oil (called *huile grise*, modification of Lang's): mercury, 40; sterilised anhydrous lanolin, 12; sterilised white vaseline, 13; sterilised vaseline oil, 35. By weight: specific gravity 1·40, and 2½ minims contain 1⅝th grains of metallic mercury (that is, 10 centigrammes). 10 centigrammes = 1½ grains metallic mercury. *Lambkin's* grey oil (introduced in 1891), and called Lambkin's cream, after Dr. Althus's carbolised mercurial cream, who first introduced it into London: mercury, 1; anhydrous lanolin, 4; liquid paraffin with carbolic acid (2 per cent.) to produce 10. Mercury and lanolin by weight; the liquid paraffin by measure. 10 minims contain 1 grain metallic mercury (that is, 7 centigrammes). Colonel Lambkin's formula above quoted is the grey oil ordinarily used in the British army in England, and 10 minims (7 centigrammes metallic mercury) is the ordinary dose. Abroad a slightly different formula is used for warmer climates (temperature 70° to 80° F.), and I use this myself now at Malta—namely, Form A: Hydrarg. pur., 2 drachms (by weight); adeps lanæ anhydrous, 3 drachms (by weight); paraffin. liquid. carbol. (2 per cent.) ad 10 drachms (by measure). 5 minims contain 1 grain of metallic mercury (that is, 7 centigrammes). This latter formula very closely indeed approximates to Lafay's "*huile grise*." There were two other forms—namely, B and E. For a full account of the original research work which I made on this subject, extending over many months, I would refer Dr. Pernet to the November and December, 1908, numbers of the *British Journal of Dermatology*, where my official report is furnished on all three forms; the only difference in composition being that in place of paraffin. liquid. carbol. (2 per cent.), paraffin. molle alb. carbol. (2 per cent.) was used in B and E forms, which made the preparation denser and firmer. I reported "that the chronic intermittent plan of intramuscular injection has been used with all three forms, that is, six weekly injections of gr. 1 (7 centigrammes) metallic mercury, rest for three months, then six weekly injections, and so on for two years. I have not seen any case of mercurial stomatitis under the use of the chronic intermittent plan. Owing, however, to the frequency and persistence in many instances of marked glandular enlargement amongst out-patients, and the not infrequent occurrence of severe relapse, the total effect on the early stages of syphilis of insoluble salts of mercury is not always apparent amongst out-patients." I have closely studied the effect of insoluble grey oil to date (October, 1909) and the beneficial effect on the early stages of syphilis (chancre, inguinal adenitis, &c.) is, in my opinion, not nearly as marked as that by the inunction method properly applied in hospital, where the

patient is dieted and under much better discipline. I have recently tried on in-patients at Malta doses containing 1½ grains of metallic mercury (that is, 10 centigrammes) on the so-called early, abortive plan, and the result has been no better than with a smaller dose, and not infrequently toxic symptoms developed about the fifth dose.

In the first report of the Advisory Board on Venereal Diseases in the Army it is stated on p. 12: "In certain cases ..... mercury ceases to be absorbed, and what has previously been absorbed is not eliminated. This condition known as mercurial stasis involves great risk to the patient. This is especially the case when injections of insoluble preparations are being made use of, as a large quantity may be introduced into the tissues with serious or fatal consequences when absorption again commences." In some 20 to 25 deaths on record under injections of insoluble preparations, mercurial stasis commonly occurred before death and could occur as long as two months after the last injection. This emphasises the important fact that insoluble preparations are by no means always regularly absorbed or eliminated.

My object in replying on Sept. 25th, 1909, to Dr. Pernet's article was to indicate possible dangers from a too purely routine use, or from too large doses of insoluble grey oil, and so obviate, if one could, any possibility of a repetition of the numerous accidents that arose from the abuse of mercury a century ago, which, for a time, led to the disuse of our most valuable agent in the treatment of syphilis, when *judiciously* administered.—I am, Sir, yours faithfully,

Malta. H. C. FRENCH, Major, R.A.M.C.

INFLUENZA WITH SCARLATINIFORM RASH.

To the Editor of THE LANCET.

SIR,—Influenza is, of course, by no means the only infectious disease which occasionally shows a rash simulating the rash of scarlet fever. There is, for instance, the prodromal scarlatiniform rash which occasionally precedes the characteristic rash of small-pox. (It is true that the distribution of the scarlatiniform rash in small-pox, together with the other symptoms, should prevent a mistake in diagnosis, but in my experience in connexion with fever hospitals I have known a case notified as scarlet fever and recommended for admission to the ordinary scarlet fever wards.) Occasionally a scarlatiniform rash is seen as a prodromal rash in measles, or diphtheria, or even typhoid fever or chicken-pox. Indeed, in my opinion, any septicæmia may give rise to such a rash, and therefore, of course, a diagnosis of scarlet fever should never be based on a rash alone, though it is always safe to conclude that a scarlatinal rash indicates the probability of an infective germ at work, and that the case should be promptly isolated at home. A careful investigation even at the first visit will almost invariably secure a sufficient amount of evidence to make a correct provisional diagnosis, which in the majority of the more doubtful cases will probably be amply confirmed at the next visit.

I am, Sir, yours faithfully,

Norwich, Dec. 31st, 1909. J. T. C. NASH.

A MEDICAL BRANCH OF THE NAVY LEAGUE.

To the Editor of THE LANCET.

SIR,—A proposal has been made to form a branch of the Navy League. which shall consist entirely of medical men, irrespective of political opinions. Our profession has lent invaluable aid to various movements in the past, and there is no object more worthy of our support than the one which deals with the first line of defence in this country. Knowing the exceptional opportunities which medical men possess of discussing questions with all grades of society it seems only right that some organised attempt should be made by the profession to use these opportunities, and thus further the interests of an object which so closely affects the welfare of the Empire. The Navy League has proved of such value in this country that a similar organisation has been founded elsewhere with such singular success that its membership now far exceeds that of the English League. We believe that if medical men choose to use the influence that they possess they can do a great deal towards advancing the claims of this league, and it is with this end in view that we the undersigned have formed ourselves into a provisional committee for the founding of a medical branch of the Navy League. The following are the rates of subscription: Vice-Presidents, £5 annually; Fellows, £1 1*s.* annually; Members, 5*s.* annually.

All medical men who wish to join this branch are requested to send in their names to Dr. Maurice Craig, 54, Welbeck-street, London, W., who will forward the necessary form of of application for signature.

We are, Sir, yours faithfully,

W. H. CLAYTON GREENE,
G. LENTHAL CHEATLE,
MAURICE CRAIG,
JOHN FAWCETT,
ALFRED D. FRIPP,
W. P. HERRINGHAM,
ARTHUR LATHAM,
W. T. LISTER,
E. D. MACNAMARA,
HERBERT S. PENDLEBURY,
HUGH M. RIGBY,
RISIEN RUSSELL,
LEWIS SMITH.
R. PERCY SMITH,
J. M. G. SWAINSON,
H. CAMPBELL THOMSON,
H. G. TURNEY.

Jan. 4th, 1910.

THE INDICATIONS FOR OPERATION.

To the Editor of THE LANCET.

SIR,—It seems advisable that an early protest should be entered against the latest development of the lust for operation with which, judging from Mr. B. G. A. Moynihan's article in your issue of Jan. 1st, we seem to be threatened. We have in recent times seen inoffensive mobile kidneys proclaimed to be so great a danger as to demand immediate operation. We have seen appendicular affections elevated into a species of cult, imposing upon every practitioner who valued his reputation the necessity for reading into any abdominal pain so imminent a menace to life as to require the instant removal of perfectly normal appendices.

Now, forsooth, if Mr. Moynihan is successful in obtaining disciples, we are about to witness the unedifying spectacle of people with simple indigestion being hurried to the table to undergo an operation for duodenal ulcer. The road is to be a royal road. "It is therefore not necessary to the attaining of an accurate diagnosis that an examination of the patient should be made. The anamnesis is everything, the physical examination is nothing."

And this "anamnesis," what does it reveal? It reveals the ordinary classical symptoms of acid dyspepsia, as described in a thousand text-books, and successfully treated by bismuth and soda by millions of practitioners. Only this, and nothing more.

As I transcribe the above astounding passage I pause to wonder whether, after all, Mr. Moynihan is not indulging in a joke. If he is, I may perhaps be allowed the reflection that his jocularity is something lacking in polish, but if he is not joking I feel sure that I am not the only person who will feel that his teaching is seriously lacking in qualities which are even more important than polish.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 1st, 1910. LEONARD WILLIAMS.

GUERNSEY SUNSHINE, 1909.

To the Editor of THE LANCET.

SIR,—During the past gloomy year 1967 hours of sunshine have been registered in Guernsey. I think this means that Guernsey holds the record for the year in the British Isles, as it has done on many previous occasions.

I am, Sir, yours faithfully,

HY. DRAPER BISHOP,
Medical Officer of Health, States of Guernsey.

Health Office, Guernsey, Jan. 3rd, 1910.

THE MEDICAL VETO ON SCHOOL ATTENDANCE FOR CHILDREN SUFFERING FROM CHRONIC DISEASE.

To the Editor of THE LANCET.

SIR,—That ultimately the attendance at school of a particular child will be at the discretion of a school medical officer is, I think, undoubted. The latest memorandum from the Local Government Board and the Board of Education on infectious disease places so much responsibility upon the school medical officer with regard to individual children that the habit of applying to him for endorsement of medical certificates will not be confined to the present list of infectious diseases, but will probably be extended to all children. There is already a tendency for school attendance officers to rely upon the verdict of the school medical officer in cases of chronic debility where a medical certificate is not procurable or when the child can be brought to attend a medical inspection. In this relation it is probable that a whole-time school medical officer will at times conflict with the expressed opinion of the medical practitioner. It is on this account that I write this letter.

The extent to which medical practitioners rely upon absence from school as a panacea for chronic disease and debility is extraordinary, and yet, in the country at least, the results fall far short of the intention. In the majority of cases nowadays absence from school is recommended to ensure fresh-air treatment. Actually by staying away from school the child gets less fresh air. The mother, however willing, has housework to perform, washing, cooking, &c., which cannot be conducted in the open air, and the child holding close to the mother, she being its only companion, insensibly becomes a house-dweller. Luckily, it is the younger children—those between 5 and 6 years—who are usually kept at home, but frequently older children, especially girls, say, from 9 to 12 years of age, are advised to stay away. The younger children may make up the leeway, but the older children (girls) rarely do, and with them it is the most difficult thing to get them later into such a condition that they can attend school. The secret of this lies in the fact that any prolonged stay at home deprives a child of companionship. Life is, after all, but a competition, and a competition from the first to the last. To keep any child out of competition is to start it later on in the race with a handicap. Children with physical disability are already so handicapped that deliberately to keep them from intercourse with their fellows is to handicap them enormously. There is hardly a case, for instance, of infantile paralysis of the leg which is not self-centred, prone to excitement and depression alternately. Parents are indulgent on account of the deformity; the child shuns its fellows and prefers its own company. Those children for the very reason of their defect should be thrust out from home, thrust into competition with their fellows, and in so doing they acquire the training necessary for the competition of life; they form friends, and friends are a necessity to mankind. Unless the habit of friendship is formed early it is not formed at all.

Thus far I have considered the effect of staying at home upon the mind, but upon the body attendance at school has an equally great effect. The greatest success of medical inspection in this county area has been in showing the parents that by sending a child to school and giving it fresh air at night the children will get on. The going to and from school and the playtime with its comrades, have counteracted the effects of sitting in a possibly badly ventilated school for a few hours. Where it succeeds best is in children between 5 and 6 years of age with large tonsils and adenoids and frequent attacks of slight bronchitis, promptly labelled "consumptive." After a year or two "growing out of tonsils and adenoids" those come to school regularly in the ordinary course; make a point of their attending school and the "bronchitis" or "consumption" disappears automatically. But even in the case of children with heart disease whom no one would recommend strongly to attend school, is there any object in keeping them away from their fellows? The aim of school is to fit a child for the struggle in life, and it is the form of training which centuries of experience have taught us is the best. Who are we that as medical practitioners we should go against what hard experience has taught us all—viz., that school-life fits the child best for after life? We should remember that keeping a child away from its fellows, even for a short period, may have effects which will lastingly handicap the child through life, and we should not be in a hurry to accept the responsibility thereof.

I am, Sir, yours faithfully,

G. I. STEWART, M.B. Aberd., F.R.C.S. Eng.,
School Medical Officer, East Suffolk.

Ipswich, Jan. 1st, 1910.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Infirmary and Scarlet Fever.

THERE is a good deal of scarlet fever in Manchester, and it is, of course, desirable to keep it out of the infirmary, provision being made for it at the municipal hospital at Monsall. In order to aid in this object Dr. J. Niven, the medical officer of health, has offered, and the infirmary board has accepted the offer, to check the list of patients seeking admission to the infirmary, in order to ascertain if there is any infectious disease in the houses of prospective patients.

Hospital for Consumption at Radcliffe and Whitefield.

Last summer the sum of £1500 was raised with the object of establishing a hospital for consumptives for Radcliffe and Whitefield. Since then, however, Mr. and Mrs. Aitken of Holcombe Hall, near Burnley, have generously offered their residence as a sanatorium under the control of the Bury and District Joint Hospital Board, in whose area Radcliffe and Whitefield are included. This offer has made the first scheme unnecessary, but the sum of £1250 of the money raised is to be set apart for the families of poor consumptive patients. Where the father, the "breadwinner," is the victim the anxiety felt for his family must add a grievous burden in addition to that of his malady. The administration of the fund will be in the hands of public men, and representatives of the Trades Council, the Coöperative Society, and the Charity Organisation Society, who will be trustees.

The Homeless on the Brick-crofts.

Notwithstanding all the philanthropic efforts of the benevolent of Manchester, and notwithstanding the provision made by the Poor-law for the shelter of the homeless, there is a vast amount of unrelieved misery. Every night of the year numbers of men sleep out on the brick-crofts in the outskirts of the city, and batches of them are frequently brought up at the police courts. A visitor spent the night at one of these resorts, and found at least 50 men in the various kilns, drying sheds, and other out-houses. Many of the men were said not to have had any other shelter for weeks. If this indicates the numbers to be found at the other brick-crofts round the city, some hundreds, probably 400 or 500, must seek such shelters every night. The police are said to apprehend these people with some reluctance, as they are not, as a rule, criminals but the victims of circumstances. Whether they have come to their present condition by their fault or folly, by crime, laziness, or incapacity does not help much in the solution of the difficulty. With many the difficulty of getting work to do is the root of the matter. Others are loafers, tramps, the idle, and shiftless, those "born tired," with whom is a proportion of weak and ailing. It is an undoubted danger to the public health that these men should herd together, with the great probability of spreading disease, and the certain injury to their own health. The amount of damage done to bricks and boards also is said to be very great, but the proprietors are afraid of trying to stop the trespass lest they should be made to suffer by vindictive destruction.

Foreign Meat.

The meeting of the port sanitary authorities of Manchester on Dec. 29th showed how necessary it was to keep a keen watch on imported food brought up by the Ship Canal. The medical officer reported that during the month 16 tons of unsound food had been condemned. This was chiefly at the foreign animals wharf. It is very evident that the importation of animal food by the canal requires careful watching. Just before Christmas an unusually large number of cattle arrived at the wharf, no doubt in anticipation of demands of

the season, and among these an exceptionally large number had to be condemned.

Medical Women as Resident Officers at the Infirmary.

The agitation caused by the decision of the Infirmary Board of Management not to admit qualified ladies to resident positions in the Manchester Infirmary does not show any sign of abatement. At the monthly meeting of the Chorlton board of guardians on Dec. 24th Miss Hertz moved that a strong protest against the decision of the Infirmary board should be sent on the ground "that it was not only detrimental to the female students, and therefore to the general public, employing medical women, but also to the interests of the sick poor in the infirmary wards." Miss Hertz went on to say: "All that was asked was that women should be treated on equal terms with men in regard to medical appointments." It has not, so far as is known, been suggested that women should have preference over men as regards residential appointments. It is to be regretted that Miss Hertz thought it necessary to say that the guardians subscribed £21 a year, and that their views should therefore have some weight. Another of the lady guardians, while protesting against the attitude of the infirmary board, was opposed to any threat of withholding the subscription. The motion was carried by 12 votes to 7. It has also been decided by the executive of the committee formed to secure the admission of qualified medical women to resident posts in the infirmary to send a courteously worded protest to the infirmary board of management.

Jan. 4th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Presentation to the David Lewis Northern Hospital.

ON Dec. 23rd, in the David Lewis Northern Hospital, a bust of the late Mr. Benn Wolf Levy, the gift of Mrs. Louis Cohen, was presented to the hospital authorities by Mr. Louis Cohen. The David Lewis Northern Hospital, it will be remembered, was rebuilt in its present commodious form from funds left by the late David Lewis to Mr. B. W. Levy and a relative resident in Australia, whose united generosity in administering a considerable proportion of the fund displayed itself in the way indicated for the benefit of the public of Liverpool. Mr. H. Wade Deacon (the chairman) gratefully accepted the gift on behalf of the hospital committee, making sympathetic references to the late Mr. B. W. Levy and the generosity with which he and his Australian relative had been inspired towards the hospital.

Cheshire Asylum Extensions.

An inquiry was held recently at the Cheshire county council office, Chester, by Mr. E. A. Fawcett, Local Government Board inspector, into the application of the Cheshire county council for sanction to borrow £82,000 for the purpose of the extension of Upton Lunatic Asylum. This step has been rendered necessary in consequence of the rapid increase of lunacy in Cheshire. Some three years ago the matter was discussed by the Cheshire county council as to the best means of providing additional accommodation for the increasing number of patients. It was eventually decided that accommodation should be provided at Upton for 500 additional patients, of whom 100 would be private or paying patients. It was proposed to build a new annexe for 440 patients, and an epileptic ward for 60 female patients. The estimated cost of the annexe was £65,891, and of the female epileptic ward £5328. At present there is no hospital accommodation for the patients, for which provision is now desired. An agreement has been entered into with Chester to provide in the asylum, when enlarged, accommodation for not more than 80 lunatics from that city, at a minimum rate of £1200 a year, exclusive of maintenance charges. There was no opposition to the scheme, and it is hoped that the application will be favourably received.

Warrington Infirmary.

Sir Gilbert Greenall has given £1000 towards the liquidation of the debt of £4000 on the Warrington Infirmary and Dispensary. The debt had been brought about by the additional cost of maintenance incurred during the last few years. Since the recent extension of the hospital the accommodation provided had been more than doubled. The infirmary authorities are making an effort to wipe out the deficit by a million pennies fund.

Jan. 4th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Selection of Liberal Candidate for the Universities of Edinburgh and St. Andrews.

Sir A. R. Simpson, M.D., Emeritus Professor of Midwifery in the University of Edinburgh, has been adopted as the Liberal candidate for the representation of the Universities of Edinburgh and St. Andrews in Parliament in opposition to Sir Robert Finlay, the Unionist candidate, late Lord Rector of the University and Attorney-General, and also a qualified physician. When it became known that Sir A. R. Simpson had consented to contest the seat it would be idle to overlook the fact that many of his friends regretted the step he had taken, as he has been so long identified with other departments of life and so little with political life.

The Edinburgh Royal Infirmary.

The managers of the Edinburgh Royal Infirmary have completed the arrangements for an additional charge on the surgical side of the hospital. Mr. David Wallace has been appointed to the new charge, and he is succeeded in the surgical wards reserved for the medical education of women by Mr. Alexander Miles, the senior assistant surgeon to the infirmary.

The Annual Report of the University of Edinburgh for 1909.

During the past year the total number of matriculated students (including 594 women) was 3322. Of these, 1241 (including 537 women) were enrolled in the Faculty of Arts, 343 (including 18 women) in the Faculty of Science, 48 in the Faculty of Divinity, 282 (including 1 woman) in the Faculty of Law, 1386 (including 27 women) in the Faculty of Medicine, and 22 (including 11 women) in the Faculty of Music. Of the students of medicine, 591, or nearly 43 per cent., belonged to Scotland; 282, or over 20 per cent., were from England and Wales; 123 from Ireland; 83 from India; 274, or nearly 20 per cent., from British colonies; and 33 from foreign countries. These figures show that the proportion of non-Scottish students of medicine is well maintained—indeed, is higher than it has been for 10 years. The number of women attending extra-academical lectures, with a view to graduation in medicine in the University, was 65. The medical degrees conferred during 1909 were: Bachelor of Medicine and Master of Surgery (M.B., C.M.), 1; Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), 180; Doctor of Medicine (M.D.), 70; and Master of Surgery (Ch.M.), 2. The Diploma in Tropical Medicine and Hygiene was conferred on 8 candidates. The annual value of the University fellowships, scholarships, bursaries, and prizes in the Faculty of Medicine now amounts to about £3830. The past year, like its predecessor, has brought with it three changes in the professoriate. An illness which had compelled Professor D. J. Cunningham to ask for leave of absence in the winter terminated fatally in June. During his brief tenure of the chair of Anatomy Professor Cunningham, alike by his gifts as a teacher, his scientific work, and his capacity and zeal in the task of University administration, rendered services of the highest value, and steps are now being taken to set up a permanent memorial to his name. The vacancy created in the chair of Anatomy was filled by the appointment of Dr. Arthur Robinson, Professor of Anatomy in the University of Birmingham. Another loss occurred in the ranks of the Faculty of Medicine in the autumn, when Professor John Chiene resigned the chair of Surgery. For 27 years he had well maintained the high traditions of his office by his eminent work as a surgeon and his success and popularity as a teacher. He has been succeeded by Professor Henry Alexis Thomson. Dr. D. C. A. McAlium is successor to Dr. T. D. Luke as University Demonstrator on Practical Anæsthetics. Professor Harvey Littlejohn has been appointed Dean of the Faculty of Medicine, in succession to the late Professor Cunningham. As in former years, the University has to make grateful acknowledgment of numerous benefactions. The Carnegie Trust for the Universities of Scotland continue to make generous provision for some of the

needs of the University, especially in regard to the endowment of lectureships, the purchase of books for the library, buildings, permanent equipment, and apparatus; while of the large sum devoted by the Trust to the payment of class fees about one-third comes to Edinburgh students. The late Dr. Thomas M'Kie, advocate, has made a bequest to the University Court for the purpose of developing and encouraging scientific, medical, and surgical research in the University. Among other benefactions may be noted a bequest by the late Professor Cunningham of all his medical and scientific books to the University to form the nucleus of a library for the anatomical department; a gift by Emeritus Professor Chiene of his surgical museum, diagrams, and laboratory apparatus; and a gift by the widow of the late John Anderson, M.D., LL.D., of £100 for the purchase of books for the department of anatomy. The subscribers to a memorial to the late Professor Annandale have instituted an annual gold medal, to be known as the "Annandale Gold Medal in Clinical Surgery." The Crichton Research Scholarship Fund has increased so as to permit of the institution of an additional scholarship of £100 a year; and there are now five of these scholarships in the Faculty of Medicine. Additions to the University library for 1909 numbered 5121. Accommodation was again given in September by the University authorities for a scheme of post-graduate courses in medicine, held under the joint auspices of the University and the Royal Colleges of Physicians and Surgeons.

The Carnegie Trust.

The executive committee of the Carnegie Trust confines its eighth annual report to a brief summary of the year's operations, a comprehensive review of the work of the Trust since its foundation having been made in the report for 1908. The reports of the independent authorities who have examined the records of the year's work under the research scheme of the Trust give evidence that its past success is being well maintained. As formerly, the committee desire to acknowledge the assistance rendered by the universities in providing the scheme with so many able workers and in affording accommodation and supervision in the various laboratories. In the laboratory of the Royal College of Physicians, which in the department of medicine has taken a prominent share in the Trust's scheme of research, the record of work for the past year is equally encouraging. The expenditure for 1908-09 upon the scheme of fellowships, scholarships, and grants, and upon the laboratory was respectively £6861 and £1992, towards the latter of which the Royal College of Physicians and the Royal College of Surgeons together contributed £1025. In regard to the second quinquennial scheme of distribution, which opened with the year under review, and which was fully described in the last report, the committee state that besides making contributions of £65,250 to buildings and permanent equipment and £20,500 to libraries, it will at the close of the period of five years have increased the resources of teaching in the four university centres by permanent endowments amounting to £87,500, while it will at the same time have afforded during the five years an annual income of about £4150 to meet ordinary expenditure. Consideration was also offered to certain additional claims for temporary assistance in establishing fee funds where it had not yet been possible to institute the fee fund scheme of the last Universities' Commission. Applications under this head have already been dealt with in connexion with University College, Dundee, and the clinical department of the Glasgow Medical School, and it is possible that one or two further demands of a similar kind may have to be considered. Statistics of the payment of class fees for the academic year 1908-09 give the total number of beneficiaries as 3553, the total number of fees paid as £47,076 18*s.*, and the average amount in fees paid per beneficiary as about £13 5*s.*

The Royal Victoria Hospital for Consumption, Edinburgh, and its Ancillary Establishments.

At the recent annual meeting of the Royal Victoria Hospital for Consumption Sir Alexander Christison, president of the committee, in submitting the annual report made an interesting speech regarding the development of the various branches of the hospital's activity and dwelt on the completion of the scheme of antituberculosis operations which was begun in 1887 through the establishment this year of the working colony. He showed that the purpose of the Royal Victoria Hospital for Consumption was much larger than the cure of the 100 patients who were daily under treatment at the hospital proper. The institution in its several branches had a wide outlook on tuberculosis from the preventive as well as the curative point of view. It aimed at tackling every aspect of the problem with a view to the eradication of the disease. Towards this end a combination of agencies was necessary. The creation of these had been the endeavour of those in charge ever since the foundation of the Victoria Dispensary for Consumption 22 years ago. The fundamental principle of the dispensary was that, if tuberculosis was to be treated effectively, they must not be content to treat the consumptive poor who presented themselves with more or less advanced disease at the out-patient departments of hospitals. Cases of tuberculosis must be sought for in their homes. The consumptive patient must be followed to his dwelling. They must inspect the dwelling and as far as possible inspect all members of the household so as to detect the disease at the earliest stage. It was constantly found that several members of a household were affected simultaneously. By the "march past," which had for long been a feature of the dispensary, such contact cases were brought under the surveillance of the institution. The dispensary dealt with every type of tuberculous patient among the poorer classes and with every inquiry regarding the treatment and prevention of consumption. It sifted and grouped the cases and recommended the suitable line of treatment. Some patients continued as visiting patients at the dispensary. Others, too ill to come to the dispensary, were attended at their own homes by the doctor and nurse and by the Samaritan Committee. Early cases were passed to the sanatorium—the Royal Victoria Hospital—with a view to cure. Advanced and dying cases were recommended to the medical officer of health for admission to the City Hospital (62 beds) or, in the case of paupers, to the Parish Hospital, where special provision existed. During the year, at the laboratory of the dispensary, the diagnosis of tuberculosis had been confirmed by bacteriological examination in 418 cases. All cases presenting themselves at the dispensary were notified to the medical officer of health of Edinburgh or of Leith, as the case might be. The dispensary had proved a most valuable instrument in relation to notification. In the Royal Victoria Hospital itself they had now approximately 100 beds, and to this figure fell to be added a considerable number of visitant patients, who spent the entire day under the régime of the hospital, returning home for the night. The system of graduated labour continued to prove of first importance in the treatment of patients. The grounds of the hospital had long been largely maintained, and extensions from time to time had been made, by the activities of the patients themselves. Coloured badges were given to the patients according as they passed from one grade of work to a higher grade. The effect of this had been to add interest to the work and promote a healthy emulation to reach the highest grade. The degree of work was carefully regulated by physiological considerations. In the great majority of cases an arrest of the disease had been attained. Most gratifying evidence of the permanence of cure was forthcoming in letters frequently received from patients in the enjoyment of good health for years after their discharge. At the last annual meeting a special plea on behalf of a special working colony had been submitted by the Right Hon. Lord Dunedin, who pointed out that the colony was not a new departure but an essential part of the original plan. The purpose of the colony was to afford occupation for a selected number of patients to whom return to their ordinary avocations would mean relapse and disaster. "Colonists" would be selected from among the patients who had passed to the higher grades of graduated work—i.e., patients able to work the greater part of a day, but return to whose previous occupation would almost certainly mean relapse. He was happy to announce that in response to the appeal over £6000 had been received within a few months. The committee had carefully considered numerous sites and had selected the estate of Springfield, adjoining the classic Hawthornden. This had been acquired and was in course of adaptation. The property contained 50 acres and an extensive dwelling house, which would require only slight structural alterations. Lady Dunedin seconded the adoption of the report, which was carried unanimously

Dundee Infirmary Directors and the Sidlaw Sanatorium.

The directors of Dundee Royal Infirmary met on Dec. 27th last and again discussed the offer of £10,000 to them by Mr. J. K. Caird for the taking over and carrying on of the Sidlaw Sanatorium. At the outset a conference with the medical staff took place. All the latter laid emphasis on the fact that such an institution would be of great service to the community. The directors subsequently discussed the whole subject from all points of view. It was thought that any arrangement that might be come to on the basis of Mr. Caird's letter would only be temporary in view of the fact that the gift of £1000 per annum would lapse at the end of 10 years, and that, therefore, the directors could neither ask complete control of the sanatorium endowments nor request that the buildings should be handed over to them, but simply the management of it for a period. To meet the views of the sanatorium directors it was agreed that Mr. Caird might be asked to amend his conditions, so that 20 beds would be available for children and the other 20 allocated to adults suffering from consumption, 10 for males and 10 for females. It was estimated that the cost of running the institution on these lines would be about £2200 per annum. The Caird gift and the free proceeds from the investments held by the sanatorium directors would yield between £1500 and £1600 each year, while a grant of £400 or £500 from the public health authorities might be looked for. It was decided that this suggestion should be submitted to the executive committee of the sanatorium, and that should the scheme find favour with the committee, it be then submitted to Mr. Caird for his consideration.

Treatment of Phthisis in Aberdeen.

From Dr. Matthew Hay's annual report it is gratifying to find that the mortality from tuberculous disease in the city of Aberdeen continues to decline. Thirty to forty years ago the death-rate from pulmonary phthisis at all ages was 282 per 100,000 of the population, and from other forms of tuberculous disease 121, or in all 403. Last year these figures were respectively 103 and 57, a total of 160. In none of the larger towns in Scotland was the mortality rate from these diseases so low as in Aberdeen.

Jan. 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Sanitary Improvements: Loans for Main Drainage and Working Men's Lodging-houses.

AT the monthly meeting of the Dublin municipal council which was held on Jan. 3rd the town clerk read a letter from the assistant secretary of the Local Government Board which conveyed the sanction of the latter body to the raising of one loan of £100,000 for the purpose of completing the main drainage of the city and of the added areas, and another of £17,250 to be employed in the erection of working-class lodging-houses at Inchicore. A resolution was moved that the letter should be forwarded to the improvements committee, and the speaker took the opportunity of thanking Sir Henry Robinson for his kind reception of the deputation which had waited on him in reference to the question, so that the outcome was a complete agreement with the proposition that had been submitted by the corporation. The expenditure of these loans is, it need hardly be pointed out to medical readers, of the most vital importance to the health and hygiene of the city, and also to its general appearance and æsthetic aspect. The Liffey, which for more than a generation has been made to function as the main channel of the water carriage of the Dublin sewerage, has necessarily during that period also presented an olfactory feature so objectionable as to make many sigh for the days of the well and canal water-supply, and the concomitant dry privy and ash-pit. The proposed erection of a large number of working-class lodging-houses in the suburb of Inchicore also represents an immense and most important stride in the advancement of the sanitary conditions of the Dublin slums. The worst features of the deadly areas are those produced by the filthy and fatal conditions of their tenement rooms, and the removal of so large a section of such a nursery of physical and moral evil as is represented by the expenditure of £17,250 should most assuredly have the effect of lowering the mortality and raising the morality of Dublin life.

Christmas at Dr. Steevens' Hospital.

On Dec. 27th an excellent concert was given in Dr. Steevens' Hospital for the entertainment of the patients and their friends and visitors. Thanks to the energy of the matron, Miss Kelly, an exceptionally strong and varied programme was provided. In addition to the professional and amateur performances which occupied the body of the programme Romberg's "Toy Symphony" was contributed by the resident pupils of the institution, under the leadership of Mr. H. Henn. There happened to be present at the entertainment some distinguished medical and surgical visitors from the United States, who appeared to be far better acquainted with the history of the best work done in this institution than are many of our Dublin men. They displayed the keenest interest on being shown the ward which was temporarily occupied by the patient whose "sprained wrist," with permanent deformity, gave Abraham Colles, then surgeon to the institution, the first suspicion of the frequent occurrence of the fracture which has since borne his name; also the favourite ward of the retiring and studious Dr. Freke, whose speculations on the "Origin of Species" anticipated the Darwinian hypothesis by a decade. The members of the visiting staff of the hospital also pointed out to the interested visitors the position of the anatomical theatre and dissecting-room of former days, when the institution included a complete medical and surgical school; and the curious basement labyrinth of apartments which formerly lodged many of the country pupils. But there was no feature of the institution which was examined with so much interest as the resident pupil's bedroom, from the shelter of whose couch the future author of "Charles O'Malley" gave his seven o'clock winter morning lecture to an audience of shivering students who had been informed before admission that their indefatigable master, "Jimmy" Cusack, was prevented by a sudden attack of gout from visiting the surgical wards. The fall of the school threw the hospital somewhat out of touch with the students, for whose attendance the position was too distant, but that difficulty has been in great measure overcome by the energy of the present staff. Christmas was worthily celebrated at others of the Dublin hospitals, and nowhere, I am told, more merrily than at the Children's Hospital in Temple-street.

The Pollution of Belfast Lough.

The Royal Commission on Sewage Disposal has issued a brief statement as to the investigations it is making in regard to the growth of ulva latissima and other weeds in Belfast Lough. The Commissioners are satisfied that a serious nuisance is experienced at times in the case of this lough. In the cases in which nuisance is caused by these growths the water is invariably polluted, but the amount of weed bears no direct proportion to the amount of pollution. Moreover, the Commissioners say that there are many polluted estuaries in which there is no growth of ulva latissima, at any rate, no growth sufficient to cause nuisance. Before remedies are proposed, in any case, it is clearly of importance that the exact conditions which favour the abnormal growth of the weed should as far as possible be ascertained, all the more as the general knowledge of the subject is exceedingly limited; hence the Commission is making an exact study of the conditions in Belfast Lough. It has appointed Professor E. A. Letts to assist in this work, and Mr. Cotton of the Royal Botanical Gardens, Kew, is giving valuable help on the botanical side of the question. The Commissioners have also asked the various parties who are interested in the matter to furnish them with any exact scientific data which they may possess. They have found from their own examination of the sloblands that mussel-beds form an excellent anchorage for the weed, and it is possible, therefore, that the removal of these beds might have the effect of checking the development of the weed, and thus of diminishing the nuisance. For this reason it seems to the Commission that the removal of the mussel-beds from a fairly large area of the sloblands is an experiment which should be carried out. In the near future parties who are interested in the matter will be afforded an opportunity of giving evidence.

Obituary: Michael Higgins, L.R.C.P. & S. Edin.

Mr. Michael Higgins died suddenly at his residence in Dungiven, county Derry, on Dec. 28th, 1909, from cardiac disease, a condition from which he had been ailing for a

considerable time. Educated at Queen's College, Belfast, he became a Licentiate of the Royal College of Physicians and Surgeons of Edinburgh in 1896. About 13 years ago he was appointed medical officer of Dungiven Dispensary district, where he has practised ever since, and where with rich and poor he was a great favourite. Mr. Higgins, who was a native of South Derry, was only 42 years of age, and was married to a daughter of the late Dr. T. M. Bryson of Limavady, who with four young children survives him.

Jan. 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hot-air Treatment of Raynaud's Disease.

IN the treatment of Raynaud's disease M. Bensaude has found the use of hot air decidedly advantageous, and at a meeting of the Société Médicale des Hôpitaux held on Dec. 17th, 1909, he showed three patients as illustrative examples. One of them suffered from attacks of local syncope and another from trophic lesions of the skin of the fingers and small patches of gangrene of the pulp, whilst the third was the subject of cyanosis with gangrene of the deep parts of the left little finger and the right forefinger. A photograph of the characteristic appearances seen in the last-mentioned case was also on view. A fourth patient suffered from extreme cyanosis of both feet with phlyctenulæ and superficial necrosis of the skin of the toes. The hot-air treatment was beneficial in these different clinical forms of the disease, stopping the attacks of local syncope, diminishing the cyanosis or causing its complete disappearance, calming the pain, and averting gangrene, which seemed to be imminent. Of course, it was not a specific against gangrene, but it facilitated the separation of the necrosed portion, and the resulting cicatrix was sound without rigidity. Unfortunately, the treatment was slow in its action and required much perseverance on the part of the patient. The fourth of the above-mentioned cases had made 75 attendances, each of which lasted from two to three hours. M. Bensaude considered that when the disease had existed in a severe form the treatment ought to be continued at intervals during winter for the purpose of maintaining the improvement which had been effected. Notwithstanding these inconveniences, he considered hot air to be the best of the remedial measures which had as yet been suggested.

Treatment of Hydatid Disease of the Liver.

M. Routier has operated on 41 patients suffering from hydatid cysts of the liver; in seven of these cases the cysts were multiple, the ultimate results in this group being two deaths and five recoveries. An account of the cases was given by him at a meeting of the Surgical Society held on Dec. 15th, 1909. The cysts were treated either by free incision followed by marsupialisation or by reduction without drainage after formolisation. This last method was certainly the best, but unfortunately it was not applicable to all cases. M. Auvray gave details of 53 cases in which the treatment consisted of complete removal of the hydatid cyst; in the result there were 49 recoveries and 4 deaths—i.e., a mortality of about 7·5 per cent. He considered that extirpation was seldom necessary.

Errors in Radiography.

In showing a series of radiographs to the Society of Legal Medicine M. Ménard and M. Collat said that every radiograph ought to be accompanied by a memorandum indicating (1) the relative position of the X ray tube, the photographic plate, and the part under examination; and (2) the distance of the tube from the plate and from the anatomical reference point of the part. An oblique position of the plate might either exaggerate a lesion such as the separation of the ends of the bones in a fracture, or in the absence of any lesion it might give rise to a delusive appearance of ankylosis or crushing of the bones or dislocation. It was also necessary to mention other circumstances such as the more or less penetrating qualities of the rays actually employed and the kind of paper selected for the positive print. It depended on the quality of the rays and also on the paper whether certain details would or would not appear in the prints. Retouching was undesirable and could not pass unobserved in enlarged pictures which showed both the grain of the paper and that of the gelatine film. As physical considerations were incapable of determining whether a radiograph was exact or not, it was necessary that the operator should possess anatomical and clinical knowledge, and that he should understand how the points of reference in the part under examination ought to be selected.

Treatment of Telangiectasis following Radiotherapy.

At a recent meeting of the Radiological Society M. Belot described several successful methods of dealing with telangiectasis. When the lesion was isolated and consisted of a central stem with many branches he used negative electrolysis of the origin of the stem and often of the first part of the branches. When the lines of telangiectasis were very fine and confluent electrolysis was difficult, he had devised a procedure which he had called *scarifications ignées* and in which a small galvano-cautery knife was used for scarifying perpendicularly to the general direction of the lesion in such a way as to cut the vessels without going beyond them. An excellent result without any appearance of a scar was seen in the case of a female who had been treated for lupus of the face and was shown at the meeting. M. Belot also described some other methods of linear scarification followed by the application of electric currents of high frequency.

Presentation to Professor Bar.

On Dec. 21st, 1909, in the amphitheatre of the Clinique Tarnier the pupils of Professor Bar presented him with a medal in honour of his admission to the Academy of Medicine. A great number of gentlemen who had formerly held appointments as his *internes* and *externes* travelled from country districts in order to express their congratulations personally. Speeches were delivered by M. Brindeau, M. Louis Rénon, M. Bonnaire, and M. Tissier, and Professor Bar returned thanks in an impressive reply.

Radium in the Treatment of Uterine Cancer.

M. Chéron and M. Roubens-Duval have treated several cases of uterine cancer by the ultra-penetrating radiation of radium, and they presented a communication on the subject at a meeting of the Obstetrical Society of Paris held on Dec. 15th, 1909. In three of the cases there was primary cancer of the neck of the uterus and in two there was secondary cancer of the vagina. The result was a cessation of the hæmorrhage, sanious discharge, and pain. At the same time the ulcerated surfaces assumed a healthy appearance, the concomitant inflammatory symptoms subsided, and the tumour even became undiscoverable on clinical examination, its site being occupied by pliant cicatrices. M. Chéron and M. Roubens-Duval, however, did not claim that there was recovery in the absolute sense of the word. One patient received treatment on eight occasions at intervals of three weeks or a month.

Jan. 3rd.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Prophylactic Measures against Pellagra.

CERTAIN parts of the Austrian Empire, especially those in the south and east, suffer greatly from pellagra, a disease which evidently has poverty as one of the factors in its causation. In the eastern districts efforts for the prevention of pellagra have been made continuously for some years, and the practical experience gained there is now being utilised for the purposes of a similar campaign in the south—namely, in the county of Görz, with a population of about 310,000. The number of cases of pellagra known amongst the inhabitants of the affected district is at present only 3000 approximately, but no doubt closer investigation may reveal a much worse state of affairs. A "pellagra committee" has been formed in the affected districts, and arrangements have been made for carrying out the following preventive measures, the necessary expenses being defrayed jointly by the county council and the State. Depôts will be established where the poorer classes may obtain wholesome and properly cooked food at a nominal cost. A number of ovens for preparing maize will be at the disposal of

the pellagra committee; storehouses for maize will be erected where good maize will be both sold and given in exchange for spoiled; and seven bakehouses for making bread will be provided. A special hospital, or "pellagrosarium," and if necessary an emergency hospital, will also be built out of the fund. The population will be instructed, by the distribution of leaflets, to pay attention to the initial symptoms of the disease and an explanation of the cause and course of the cases is added. Statistical data will also be collected as regards the spread of disease. In order to provide work for destitute persons various undertakings of public utility will be begun at once, including an extensive system of draining agricultural land. The want of such drainage has been one of the chief causes why large tracts of land planted with maize were every year under water for weeks and weeks so that the grain did not ripen properly.

Suture of a Penetrating Wound of the Heart.

At a recent meeting of the Gesellschaft der Aerzte Professor Schnitzler showed a man who had been under his care, having been admitted to a hospital almost moribund from the effects of a self-inflicted stab. At the time of admission blood was oozing from the wound, which was close to the left mammilla and one inch long. The pulse in the radial artery could not be felt. As quickly as possible the cartilages of the fourth and fifth rib were resected, whereupon coagulated blood was found in the pleural cavity and in the pericardial sac; the pericardium was punctured and in the wall of the right ventricle there was a wound penetrating its entire thickness and half an inch long. The wound in the heart was brought together by silk sutures, the application of which was very difficult owing to the violent action of the heart when it was touched. The pericardium was closed and a small drain was inserted into the left pleural cavity. In the later stages of the case hæmatopneumothorax, complicated by croupous pneumonia of the right lung, threatened the life of the patient for a considerable time; repeated punctures of the pleural cavity and, finally, another resection of two ribs were necessary for the establishment of efficient drainage. In Professor Schnitzler's wards there have been within the last two years two other cases of penetrating wounds of the heart, both of which proved fatal; the favourable termination of this last case was the more gratifying, as the patient appeared to be in a desperate condition at the time of admission.

The Treatment of Exophthalmic Goitre.

A demonstration, by Dr. Holzknecht, of cases of Graves' disease (here called Basedow's disease) before and after exposure to the X rays, has given rise to a very interesting and protracted discussion of the whole subject. In answer to the question, Shall exophthalmic goitre with its concomitant nervous symptoms be treated internally or surgically?—the experiences of numerous representatives of all branches of medical science were set forth before the Gesellschaft der Aerzte, and so much importance was attached to the subject that five special days were devoted to the discussion. Nearly all the surgeons of reputation stated that they would in future abstain from recommending X ray treatment in cases where operation was possible, for in all patients who had been exposed to the rays subsequent operation had proved very difficult owing to the formation of dense adhesions and an enormous increase of blood-vessels. On the other hand, the results obtained by early operation were very encouraging. Radiologists, such as Dr. Kienböck and Dr. Schwarz, asserted that they have seen much benefit accrue from a cautious application of X rays. Physicians, on the other hand, claimed that almost every case of exophthalmic goitre might be successfully treated by internal medication, rest and building up of the system after a nervous breakdown being of paramount importance. Some interesting examples of acute Basedow's disease of a very severe form were reported by Professor Winternitz. One of the patients seen by him after having for three days given himself up to sexual excesses and constant smoking, developed the typical symptoms of exophthalmos, palpitation of the heart, tachycardia, profuse sweating, diarrhœa, enlargement of the thyroid gland, and general debility. In another case the patient was an officer who had been taken prisoner in guerilla warfare and was about to be hanged; he was rescued almost at the last moment and immediately afterwards showed the same symptoms. Professor Winternitz added that hydrotherapy had proved very efficient in his hands in some cases. On the whole the opinions expressed were not very favourable to the treatment of this disease by X rays only; internal treatment, supplemented if necessary by surgical intervention, seemed to be the most usual practice in Vienna.

Jan. 3rd.

CANADA.

(FROM OUR OWN CORRESPONDENTS.)

Dominion Registration.

THE medical profession throughout Canada are practically united now in their desire that at the present session of the Dominion Parliament amendments to the Canada Medical Act of 1902 should be passed which will provide for a Dominion Medical Council and thus bring about medical reciprocity throughout the provinces of Canada. Dr. T. G. Roddick called the Special Committee of the Canadian Medical Association on Dominion Registration together in Montreal on Nov. 16th, and along with that committee there met representatives from several of the medical councils of the provinces of Canada. All the provinces were represented except the two new provinces of Alberta and Saskatchewan, but it is well known that these as well favour the principle of Dominion registration. At this meeting several amendments were suggested to the Canada Medical Act, but the general principle of the Act was agreed to as a working basis. The particular amendment is that embodied in the resolution passed at the recent annual meeting of the Canadian Medical Association in Winnipeg, which called for the Act to be enforced whenever five or more provinces agreed to the provisions of it and had the necessary legislation passed through their respective legislatures to ratify it. The following provinces have already legislation in force to take advantage of the Roddick Act, as it is commonly called in Canada: Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, and Alberta. The draft measure for presentation to the Federal Parliament is being prepared, and it is fully expected that Dominion registration, promoted by the Canadian Medical Association almost since its inception in 1867, will within the next 12 months be an accomplished fact.

The Public Press of Canada and Secret Nostrums.

When an attempt was made to place on the Statute-books of Ontario a Bill to regulate the sale of nostrums most of the Toronto press strongly protested against the passage of such a Bill, on the ground that vested interests were attacked, and pointed to the duty of safeguarding the skill and labour that had been expended on the preparation of these nostrums. In Nova Scotia but a short time ago an effort was made to secure an Act to control the sale of certain drugs in the shape of nostrums. In this instance, again, the newspapers were up in arms against the proposal, and spoke loudly concerning the liberty of the citizens. In fact, the attitude of newspapers generally in Canada is antagonistic to the passage of laws calculated to injure the sale of proprietary medicines or of secret remedies, the proprietors of which are among their most lavish advertisers. The advertising of secret remedies is carried on more freely in the Canadian journals even than in those of Great Britain, for in the most influential of them it is a daily experience to see an advertisement setting forth in flowery pseudo-scientific language the manifold advantages to be derived from the use of (say) a kidney remedy, wedged in between literary articles on really important subjects.

Typhoid Fever in Montreal.

The sanitary conditions of Montreal are not satisfactory. The sewage of the city is disposed of in a manner which is not up to the standard of the times, and the water-supply has been impeached in Parliament. Dr. Black, M.P., further has given it as his opinion that passengers who travelled on the Intercolonial Railway, where the use of spirits is not allowed, "drank disease and death" in the water supplied to the railway cars at Montreal. Typhoid fever is certainly prevalent in Montreal, and although its origin has not been directly traced infected water is, of course, the suspected medium. The public considers the authorities supine, and there is talk of the formation of a committee of citizens.

The First Minister of Health for a Canadian Province.

Saskatchewan is one of the new provinces of Canada, and like all the provinces of the west it is progressive. In medical and health matters it is taking a forward step which time and again older provinces have considered but rejected as inopportune. The legislature is at present in session, and the new Public Health Bill has been explained to the legislature by the Attorney-General. The Bill provides for the creation of a Bureau of Health and fixes the machinery for the more adequate supervision of the health of the province. The principal feature, however, is that there will be a Minister at the head of the bureau and a deputy, who shall be known as the Commissioner of Health, equipped with a staff sufficient to handle the work of the new department. A health council, consisting of four medical practitioners and the commissioner, will advise the department, meeting at stated periods for that purpose.

The Cost of Toronto Patients in City Hospitals.

The medical officer of health of Toronto, Dr. Charles Sheard, has prepared for the Toronto board of health an elaborate report on the cost of maintaining patients in the various hospitals of the city. He estimates that the total expenditure for the present year will be in the neighbourhood of $157,000. The following are the figures for the previous years: 1900, $31,416.80; 1901, $33,039.60; 1902, $34,382.30; 1903, $31,556.80; 1904, $35,281.80; 1905, $47,169.60; 1906, $49,648.50; 1907, $50,222.50; and 1908, $84,149.40. Prior to September, 1904, the annual rate in the hospitals was 40 cents per day; upon that date it was raised to 50 cents, and again raised to 70 cents per patient per day. Each hospital in Toronto for the ten months of the present year up to the end of Oct. 31st has received from the city of Toronto the following amounts: General, $31,716.28; St. Michael's, $18,421.60; Grace, $5124; Western, $7009.50; Convalescent Home, $593.50; St. John's, $607.60; Tuberculosis Sanatorium at Gravenhurst, $6587.70; at Weston, $14,622.06; Home for Incurables, $8922.05; and the Children's, $18,000. When the new Toronto General Hospital is erected in the centre of the city the old building will possibly be used for a hospital for the east part of the city.

Canadian Pathologist Appointed at Pittsburg.

Dr. Oscar Klotz, for seven years assistant to Professor J. G. Adami at McGill University, Montreal, has been appointed pathologist to Pittsburg University in the United States. He will assume his new duties about the New Year. Dr. Klotz first came to McGill as Governor's Fellow in Pathology. A year after he took up work in connexion with the Rockefeller Institute of Medical Research. In 1904 Dr. Klotz spent one year in research work in the pathological laboratories on the Continent and especially in Germany, and again in 1908 six months in the same work. In Montreal, in addition to being assistant to Professor Adami, he was assistant pathologist at the Royal Victoria Hospital and the Alexandra Hospital. He has published a large number of important scientific papers, and his investigations at McGill have been principally in experimental work regarding arteriosclerosis. The position which Dr. Klotz is accepting carries with it the supervision of the pathological departments in the Pittsburg College hospitals of which there are eight, where he expects to follow up the lines of work he has been carrying on at McGill University.

Dec. 24th, 1909.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

PLAGUE returns for the week ending Nov. 20th show a considerable increase of the disease in the United Provinces and Bombay Presidency, which report 1344 and 913 deaths respectively, the total for all India being 4711. The deaths in other provinces were: Madras, 70; Bengal, 199; Burma, 15; Punjab, 758; and the Central Provinces, 686. The plague figures for the United Provinces have exhibited a marked tendency to increase during the last few weeks. Their weekly total for plague deaths at the end of October was 634; the latest report gives a total of 1344. It is, however, only in three districts that the plague mortality is at all severe at present, Ballia district with 724 deaths accounting for considerably more than half the deaths. The other two districts are Gorakhpur, with 176 deaths, and Azamgarh, with 133.

Vaccination in Bombay.

One of the most notable changes in the control of vaccination in the Presidency during last year was the transference of powers in the town of Bombay to the municipality. Otherwise the history of the year seems to have been uneventful, but marked by steady progress. There were during the year 672,252 persons who were primarily vaccinated and 52,362 who were revaccinated, as against 595,883 and 40,954 respectively in the previous year, both of which must be considered very satisfactory increases. It is noticeable that the increase was general throughout the Presidency, the only two exceptions to the rule being the Southern and Sind registration districts, where decreases of a little over 1000 and 2000 respectively were recorded. 75 per cent. of the infants available, after deducting from the total number of those who died under one year, were vaccinated. That the work is well done is shown by the fact that 89·15 per cent. of the primary vaccinations were successful, and 96·02 if second attempts are included, and the figures could probably be increased were it possible to trace details of a large number of children who are never brought back for inspection. The number of primary vaccinations is almost equally divided between the sexes, but females seem to object to a second vaccination, and the number of females on whom secondary vaccination was performed was very small. The increasing number of vaccinations is satisfactory, and the effect is easily traced in the decrease in the ravages of small-pox in recent years.

The Walker Hospital, Simla.

It has been decided that the Walker Hospital, Simla, is to be closed from Dec. 1st to March 15th, as there are no funds available for the winter months. The position was referred to some time ago (THE LANCET, June 26th, 1909, p. 1868), and it was then pointed out that the very poor response made for annual subscriptions in Simla might compel the committee to close the hospital for some months. Next year the appeal will be repeated early in the season, the annual payment for a subscriber being Rs.10, or Rs.16 for a family. In return for this subscribers will be entitled to first-class accommodation in the wards at Rs.8 instead of Rs.10 per diem. During the winter the committee are addressing units in the northern army in India, offering similar privileges for commissioned officers and their families in return for the following annual subscriptions: British regiments, Rs.100; Indian regiments, Rs 50; and batteries, Rs.30 each. It is to be hoped that a good response will be made to both these appeals, so as to secure the financial stability of the hospital and thus prevent the interruption and disturbance consequent on these temporary closures.

Wellington Convalescent Depôt.

It is rumoured that the military authorities are again contemplating carrying out the original idea of restricting the Wellington Cantonment to convalescents only, for whom it was formed, and barracks erected. These convalescents have yearly been increasing in numbers, and now, with railway communication, are calculated to be vastly increased in numbers, so extra buildings will have to be erected, which will require time. The best barracks, where the troops are stationed during the season, are not very architectural in character and would not be a great loss if demolished.

Nov. 27th, 1909.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Charitable Institutions.

THE annual report of the Inspector of Charities in Victoria sets forth the number of patients relieved last year by subsidised charities as 148,188, of which 111,035 were out-patients. The expenditure was £307,832 and the receipts £285,656. The principal sources of revenue were: State grants, £94,915; municipal grants, £12,227; private and other contributions, £73,312; bequests, £28,036; interest, £12,065; patients' contributions, £26,361; and inmates' labour, £16,152. The inspector protests against typhoid

patients who are able to pay fees being treated in public hospitals. The Board of Public Health for some inscrutable reason has hitherto objected to private hospitals treating typhoid fever cases. The report advocates the establishment of intermediary hospitals at which all charges should be fixed and the "profits" devoted to the support of "charities."

Licensing of Midwives.

A Bill is being prepared for presentation to the Victorian Legislature providing for the registration and licence of midwives. The text has not been published, but it is understood to place the matter in the jurisdiction of the Board of Public Health.

Melbourne Hospital.

The proposal put forward by the staff of the Melbourne Hospital to do away with the present system of election by vote of subscribers is embodied in the following rules: "53. The physicians and surgeons and the medical officers in charge of special departments shall be appointed by the committee after report from the advisory board. 54. The advisory board shall consist of ten members, four being chosen by the committee, two by the medical staff of the hospital, two by the Council of University of Melbourne, and two by the Faculty of Medicine of the University. The members of the advisory board shall be chosen annually and shall hold office till their successors be appointed. ..... The quorum of the advisory board shall be six." At a meeting of the committee on Nov. 16th last Rule 53 was left for further consideration and Rule 54 was amended to the effect that the committee should appoint six members and the University Council be not represented and that seven form a quorum.

Administration of Charities.

A conference will shortly be held in Melbourne to discuss the problem of charitable administration. Mr. W. A. Watt, the State treasurer, has announced that it is not his intention to bring any scheme before the conference, but merely to take an expression of opinion on certain points. The Ministry proposes to bring forward legislation next year and to obtain some suggestions towards that end from the conference. There was no intention to sink the individuality of the various charities, nor does the Government intend that the internal management shall be taken out of the hands of local committees. A general board of control would probably be proposed to define charitable management generally.

Lady Talbot Milk Institute, Melbourne.

The committee of management of this institute has addressed a letter to the daily papers asking for public subscriptions in aid of the funds. It claims that last year 300 children were supplied with pure milk, of whom only 8 died. This year it was intended to commence the distribution of milk two months earlier—viz., Nov. 1st—and better results were expected. The estimated expenditure for the coming summer will be at least £3000, and the funds in hand amounted to less than £1000. The appeal is signed by, among others, Dr. A. J. Wood, Dr. J. Dunbar Hooper, Dr. W. A. Wood, Dr. J. F. Agnew, Dr. Boyd, Dr. Zeymon, Dr. Hiller, Dr. W. P. Norris, Dr. B. B. Ham, President of the Board of Health, Professor Gilruth of the University Veterinary Department, and Dr. Cherry, Director of Agriculture. Up to the present the response has been extremely faint-hearted, and the financial burden will almost inevitably devolve upon the municipalities and the Government.

Radium in the Treatment of Leucoma.

At the November meeting of the Victorian Branch of the British Medical Association Dr. H. Laurence contributed a preliminary note on the application of radium in eye work. Three cases of corneal opacities had been referred to him by Dr. E. Ryan with a request to try what effect radium would have in clearing the cornea. One infant with opacity resulting from ophthalmia neonatorum was stated to have improved considerably, and the other two had cleared somewhat, but vision had not been improved.

Charge of Neglect.

In connexion with the death of a patient at the Sydney Hospital a charge of neglect was preferred by the friends of the deceased. The matter was ventilated before a police magistrate in the city coroner's court. It was stated that the casualty surgeon could find no serious symptoms on the man's admission to the observation ward, and that up to the time of his death about four hours later the patient was under the care of doctors or nurses, although not disturbed by undressing or washing. The magistrate exonerated the hospital authorities from blame, but said that the friend who had complained of neglect was quite right in asking for an inquiry.

Epidemic Poliomyelitis.

An epidemic of infantile paralysis is reported from Bullina, a country district of New South Wales. The residents requested the health authorities in Sydney to report on the matter. The investigation showed that about 25 cases had occurred in the neighbourhood, and the only factor common to a great number of patients was the use of a fruit shop.

Personal.

Dr. R. J. A. Berry, professor of anatomy in the Melbourne University, has been granted leave of absence for 12 months in order to visit the Old World. The anatomical school will probably be under the direction of Mr. G. A. Rennie, F.R.C.S. Eng., during his absence.—Dr. A. Breinl, who has been appointed director of the School of Tropical Medicine about to be inaugurated at Townsville, North Queensland, is expected to arrive early in the new year.

Dec. 1st, 1909.

Obituary.

CHARLES HOWELL COLLINS, M.R.C.S. ENG., L.S.A.

Mr. C. H. Collins, who died at his residence, Bredisholm, Chew Magna, Somerset, on Dec. 22nd, in his eighty-seventh year, studied medicine at the Bristol Medical School, and later proceeded to St. Bartholomew's Hospital, London. He qualified M.R.C.S. in 1846, having taken the L.S.A. in the previous year. Mr. Collins had practised for half a century in Chew Magna and the district. He was highly respected and extremely popular, and at one time there were few better known men in the Chew Valley. Mr. Collins was a good sportsman, a member and staunch supporter of the North-East Somerset Farmers Club. His son, Captain C. Collins, has for some time past represented the Commonwealth of Australia in London. The funeral took place in Chew Magna Churchyard on Dec. 27th.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Brissaud, professor of medical pathology in Paris and member of the Academy of Medicine.—Dr. Gargam, formerly physician to the Rouen hospitals.—Dr. Otto Kölpin, *privat-docent* of psychiatry in the University of Bonn.—Dr. Lortet, formerly professor of natural history in the Lyons Faculty of Medicine.—Dr. Julius Nicolaysen of Christiania, aged 78 years. He was an honorary F.R.C.S., this distinction having been conferred upon him at the centenary in 1900. He was the first surgeon in Norway to perform ovariotomy. He had held successively the chairs of medicine and surgery in the Christiania University, being succeeded in the latter post by his son Dr. Johan Nicolaysen.—Dr. William B. Atkinson, formerly professor of children's diseases and of hygiene in the Medico-Chirurgical College, Philadelphia.

METROPOLITAN ASYLUMS BOARD: INSTRUCTION IN HOSPITAL ADMINISTRATION.—A three months' course of lectures and demonstrations in hospital administration will be given at the North-Western Hospital, Lawn-road, Hampstead, N.W., on Mondays, at 11 A.M., beginning Monday, Jan. 10th, 1910, and the South-Eastern Hospital, Avonley-road, New Cross-road, S.E., on Wednesdays, at 2 P.M., beginning Wednesday, Jan. 12th, 1910. The fee for the course is £3 3*s*. Cheques to be made payable to "The Metropolitan Asylums Board." Medical men desiring to attend a course of instruction are required before attending at the hospital to pay the above fee to the clerk to the Metropolitan Asylums Board, Embankment, E.C., giving their full name and address, and stating at the same time which hospital they wish to attend. Medical men may join the classes at the beginning of each month on the understanding that they complete the course during the following class (probably in May, 1910).

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees, Michaelmas term, 1909, the following candidates were successful:—

FIRST EXAMINATION (OCTOBER, 1909).

Part I., Chemistry.—K. Bellwood, Pembroke; W. K. Bigger, Emmanuel; H. A. Crouch, Downing; J. L. Davies, Emmanuel; H. P. Dawson, Trinity; C. D. Day, Downing; A. N. Drury, Caius; W. H. Edgar, Trinity; H. A. C. Goodwin, Jesus; L. M. Ingle, King's; L. H. James, Emmanuel; J. B. Leather and E. C. Malden, Caius; S. C. Miskin, Emmanuel; D. F. A. Neilson, Trinity; S. H. Rhodes, Caius; E. J. Selby, Downing; T. H. Somervell, Caius; P. Stocks, King's; C. R. A. Thacker and W. G. Thompson, Downing; T. T. B. Watson, Christ's; W. R. Wilson, Emmanuel; and F. B. Winfield, Downing.

Part II., Physics.—A. C. Ainsley, Caius; K. Bellwood, Pembroke; W. K. Bigger, Emmanuel; C. C. Brewis, Downing; A. A. Cockayne, Caius; H. A. Crouch, Downing; J. L. Davies, Emmanuel; H. P. Dawson, Trinity; A. N. Drury, Caius; L. M. Ingle, King's; S. H. M. Johns, Clare; J. B. Leather and E. C. Malden, Caius; E. W. Mason, John's; S. C. Miskin, Emmanuel; E. J. Selby, Downing; T. H. Somervell, Caius; G. E. Spicer, Trinity; P. Stocks, King's; C. R. A. Thacker, Downing; T. T. B. Watson, Christ's; E. Watson-Williams, Caius; W. R. Wilson, Emmanuel; and F. B. Winfield, Downing.

Part III., Elementary Biology.—H. S. Bartlett, Caius; W. K. Bigger, Emmanuel; H. R. Buttery, B.A., Christ's; G. F. Clifton and H. A. Crouch, Downing; H. P. Dawson, Trinity; A. N. Drury, Caius; L. M. Ingle, King's; M. L. Loveless, Pembroke; J. B. McFarland, Sidney Sussex; E. C. Malden, Caius; S. C. Miskin, Emmanuel; D. M. Muir and D. F. A. Neilson, Trinity; S. D. Nurse, John's; R. A. W. Proctor, Clare; S. H. Rhodes, Caius; J. W. Sewill, Clare; H. N. Stafford, Caius; P. Stocks, King's; C. R. A. Thacker and W. G. Thompson, Downing; and E. Watson-Williams, Caius.

FIRST EXAMINATION (DECEMBER, 1909).

Part I., Chemistry.—A. C. Ainsley, Caius; J. C. Andrews, John's; L. W. Batten, Sidney Sussex; A. B. Bratton, Caius; C. C. Brewis, Downing; B. Burnside, Clare; G. L. Ferguson, Jesus; H. Gardiner-Hill, Pembroke; H. L. Garson, Clare; E. A Gibb and C. H. Gow, Emmanuel; E H. H. Granger, Clare; E. T. Halnan, Trinity; J. B. Hunter, John's; R. W. P. Jackson, Clare; C. E. Kindersley, Magdalen; W. Lambert, Corpus Christi; E. A. Leak, Trinity; A. D. M'Laren, Downing; R. H. Marten, Caius; K. Masson, King's; T. D. Morgan, Jesus; W. D. Newcomb, Trinity; A. V. O'Keeffe, Sidney Sussex; A. A. Prichard and R. A. W. Proctor, Clare; W. Raffle, John's; G. E. Seon, Jesus; R. S. S. Smith and G. E. Spicer, Trinity; H. N. Stafford and E. Watson-Williams, Caius; and W. L. Willett, Trinity.

Part II., Physics.—J. C. Andrews, John's; L. W. Batten, Sidney Sussex; A. B. Bratton, Caius; B. Burnside, Clare; A. O. Courtis, Pembroke; C. D. Day, Downing; H. S. Evans, Trinity; G. L. Ferguson, Jesus; H. Gardiner-Hill, Pembroke; H. L. Garson, Clare; E. A. Gibb, Emmanuel; C. C. Goodall, Caius; H. A. C. Goodwin, Jesus; C. Grantham-Hill, Caius; E. T. Halnan, Trinity; J. B. Hunter, John's; R. W. P. Jackson, Clare; C. E. Kindersley, Magdalen; E. A. Leak, Trinity; K. Masson, King's; E. G. D. Murray, Christ's; D. F. A. Neilson and W. D. Newcomb, Trinity; S D. Nurse, John's; A. V. O'Keeffe, Sidney Sussex; W. Raffle, John's; G. B. Sellwood and E. W. L. Sharp, Emmanuel; W. G. Thompson, Downing; G. S. Trower, King's; and W. L. Willett, Trinity.

Part III., Elementary Biology.—J. C. Andrews, John's; K. B. Bellwood, Pembroke; J. L. Davies, Emmanuel; H. S. Evans, Trinity; H. A. C. Goodwin, Jesus; C. H. Gow, Emmanuel; W. B. Loveless, Pembroke; R. D. Marett-Tims, Caius; E. W. Mason, John's; H. L. Milsom, Trinity; E. G. D. Murray, Christ's; H. R. Pollock, Trinity; E. J. Selby, Downing; T. H. Somervell, Caius; G. S. Trower, King's; C. C. A. Whitworth, Trinity; W. R. Wilson, Emmanuel; and F. B. Winfield, Downing.

SECOND EXAMINATION (DECEMBER, 1909).

Human Anatomy and Physiology.—K. B. Aikman, Clare; G. Arnfield, Caius; H. A. Ash, B.A., Pembroke; D. C. G. Ballingall, Emmanuel; R. E. Barnsley, B.A., and A. V. Boyall, Trinity; E. J. Y. Brash, John's; A. E. Brown, Christ's; D. S. Bryan-Brown, B.A., Downing; E. N. Butler, Clare; D. G. Cherrington, B.A., Trinity; J. D. Clarke, B A., Sidney Sussex; A. C. Clifford, B.A., Emmanuel; H. A. Douglas, B.A., H. Selwyn; G. D. East, Emmanuel; B. C. Ewens, Caius; J. V. Fiddian, Emmanuel; N. Garrard, B.A., Pembroke; J. L. Green, Downing; J. R. Griffith, B.A., Christ's; C. Helm, King's; R. Hodson, B.A., Pembroke; A. N. Hooper, Emmanuel; D. W. John, B.A., Clare; C. C. Kerby, Trinity; G. A. Lilly, Caius; A. R. MacMullen, Caius; W. C. D. Maile, B.A., Pembroke; H. Y. Mansfield, Emmanuel; F. D. Marsh, Trinity; W. H. Marshall and J. A. Martin, B.A., Pembroke; E. J. Nangle, Caius; P. Newton, Clare; M. W. Paterson, B.A., John's; R. A. Peters, Caius; D. V. Pickering, B.A., Emmanuel; S. G. Platts, Caius; N. P. Pritchard, B.A., Trinity; Ff. Roberts, Clare; R. S. Scott, B.A., Caius; H. N. Sealy, B.A., Trinity; D. N. Seth-Smith, Emmanuel; G. A. Smythe, B.A., Emmanuel; W. S. Soden, John's; L. C. Somervell, King's; D. L. Spence, B.A., H. Selwyn; G. W. Spencer and R. Stansfeld, John's; H. M. Stephenson, B.A., Caius; A. V. Stocks, John's; J. W. Stretton, Caius; A. L. Sutcliffe, B.A., Sidney Sussex; C. R. Taylor, B.A., Caius; W. F. Thompson, B.A., King's; P. Verdon, B.A., Jesus; C. Warner, B.A., Pembroke; H. A. Watermeyer, Caius; M. H. Watney, B.A., Trinity; W. G. Watson, B.A., Caius; and A. M. Zamora, Christ's.

THIRD EXAMINATION (DECEMBER, 1909).

Part I., Pharmacology and General Pathology.—H. C. Attwood, B.A., Caius; G. V. Bakewell, B.A., Clare; T. E. Banister, B.A., Christ's; D. C. Bluett, Emmanuel; H. T. H. Butt, B.A., Christ's; J. W. H. Chun, B.A., Trinity; E. B. Clayton, B.A., Caius; H. F. Comyn, B.A., King's; H. J. Couchman, B.A., Caius; C. H. Crawshaw, B.A., Christ's; H. J. M. Cursetjee, Caius; J. Ellison, B.A., and G. F. Fiddian, B.A., Downing; D. J. Freyer, Trinity; A. W. Gaye, B.A., Caius; A. C. Gemmell, M.A., Trinity; J. B. Hance, B.A., Christ's; G. G. Johnstone, B.A., King's; R. F. Jones, John's; G. L. Keynes, B.A., Pembroke; J. C. Marklove, B.A., Caius; R. W. Meller, B.A., Trinity; H. J. S. Morton, B.A., Pembroke; F. C. Newman, B.A., Downing; A. B. Paul, B.A., Christ's; M. N. Perrin, B.A., Pembroke; C. Raymond, B.A., Caius; E. Rayner, B.A., Pembroke; H. S. Reed, B.A., Trinity; E. D. W. Reid, B.A., Christ's; H. B. Richmond, B.A., King's; F. H. Robbins, B.A., Pembroke; L. T. Rutherford, Clare; I. Singh, B.A., Pembroke; F. B. Smith, B.A., King's; W. F. Thompson, B.A., and J. R. Waddy, B.A., Pembroke; F. W. Watkyn-Thomas, B.A., and H. B. Weir, B.A., Trinity; H. F. Wilson, B.A., Christ's; J. Winterbotham, B.A., King's; and C. Worster-Drought, B.A., Downing.

Part II., Surgery, Midwifery, and Medicine.—A. Abrahams, B.A., Emmanuel; G. G. Alderson, B A., Caius; W B. G. Angus, B.A., Christ's; C. W. Archer, B.A., Trinity; L. Bromley, B.A., Caius; H. T H. Butt, B.A., Christ's; W. H. Cam, B.A., Caius; A. B. Carter, B.A., Jesus; G. Cawston, B.A., Caius; A. J. Clark, B.A.; King's; E. B. Clayton, B.A., and L. Colledge, B.A., Caius; R. Crawford, B.A., Jesus; J. H. Crofton, B.A., Pembroke; J. P. H. Davies, B.A., Jesus; H. L. Duke, B.A., and H. B. Ellison, B.A., Caius; P. K. Gilroy, B.A., H. Selwyn; T. R. Glynn, B.A., Clare; J. L. Graham-Jones, B.A., Emmanuel; B. Haigh, B.A., Caius; W. C. Hodges, B.A., Trinity Hall; G. Holmes, N. G. Horner, B.A., and H. E. Humphrys, B.A., Caius, R. W. Ironside, B.A., Pembroke; W. Ledlie, M.A., Christ's; C. McKerrow, B.A., Clare; H. McLean, B.A., Caius; L. Meakin, B.A., Trinity; E. Mellanby, B.A., Emmanuel; H. G. Monteith, B.A., Pembroke; E. D. W. Reid, B.A., Christ's; H. G. Rice, B.A., John's; J. G. Saner, B.A., Caius; H. S. C. Starkey, B.A., Downing; C. H. S. Taylor, B.A., Caius; F. R. Thornton, B.A., Trinity; G. H. H. Waylen, B.A., King's; H. B. Weir, B.A. Trinity; C. S. E. Wright, B.A., Emmanuel; and O. K. Wright, Christ's.

UNIVERSITY OF LONDON.—At the first examination for medical degrees held recently the following candidates were successful:—

Geoffrey Andrew Bird, private study; Marjorie Ada Blandy, private tuition; Marion Mildred Barrow Burt, University of Birmingham; N. St John G. Dudley Buxton, University College; Frederick H. L. Cunningham, St. Bartholomew's Hospital; John Horace Dancy, King's College; Richard Feltrim Fagan, University College; Roy Fazan, Epsom College and private study; Victor Feldman, London Hospital; Joseph Fielding, Victoria University of Manchester; Samuel Lionel Green, Stonyhurst College; Henry Little Hardy Greer, St. Bartholomew's Hospital and Queen's University, Belfast; Hugh Ernest Griffiths, University College, Cardiff; William Arthur Edward Karunaratne, University College; Reginald Heber Leigh, Epsom College and King's College; Geoffrey T. Loughborough, St. Bartholomew's Hospital; Hugh James McCurrich, University of Bristol; Owen Sidney Martin, University College; Sinclair Miller, Queen's University, Belfast; Lloyd Desbat Phillips, University College; John Sturges Ransom, Epsom College; Tom Wiltshire Robbins, London Hospital; Philip Dennis Scott, Guy's Hospital; John Hunter Sewart, Epsom College and University College; William Goodman Shakespeare, King's College; Henry James Drew Smythe, University of Bristol; James Hatton Staley, Victoria University of Manchester; Robert Seeton Stewart, Dulwich College and Guy's Hospital; Aubrey Lennard Stokes, Guy's Hospital; Edward Benjamin Sunderland, University College; Joseph Bulmer Thackeray, London Hospital; Humphrey Q. F. Thompson, Guy's Hospital; and Montague Sydney Woolf, University and Municipal Technical School, Birmingham.

The following students who took a portion of the examination under old regulations have now completed it:—

John Prichard Bracken, University College; Gwendolyn Margaret Burns, London (Royal Free Hospital) School of Medicine for Women; Ernest James Coombe, King's College; Thomas Williams David, University College, Cardiff; Harry Hope Fisk, St. Mary's Hospital; Frank Brayshaw Gilhespy, University College; and Thomas Windover Robinson, London Hospital.

The following student who took a portion of the examination under old regulations has now qualified as follows:—

Biology.—John William Heekes, Charing Cross Hospital.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Rudolf Lennhoff, editor of the *Medizinische Reform*, an important paper devoted to the advancement of social hygiene and medicine, has been granted the title of Professor.—*Budapest:* Dr. Béla Fenyvessy, *privat-docent*, has been granted the title of Extraordinary Professor. Dr. Jacques Loeb, who is now Professor at the Berkeley University in California, has been offered the chair of Experimental Biology. Dr. Koloman Pándy has been recognised as *privat-docent* of General Psychology and Neuro-pathology; and Dr. Paul Ranschberg as *privat-docent* of Medical Psychology.—*Cologne:* Dr. Leopold Bleibtreu of the Protestant Hospital has been granted the title of Professor.—*Frankfort:* Funds have recently become available for the long-desired expansion of the Academy of Social and

Technical Sciences into a complete University, with philosophical, law, and medical faculties.—*Kiel:* Dr. Franz of Jena has been officially gazetted to the chair of Midwifery and Gynæcology.—*Königsberg:* Dr. Ernst Rautenberg, *privat-docent* of Medicine, and Dr. Gerhard Joachim, *Oberarzt* in the Medical Clinic, have been granted the title of Professor.—*Leipsic:* Dr. August Döliken, *privat-docent* of Neurology and Psychiatry, has been promoted to an Extraordinary Professorship.—*Pavia:* Dr. Pietro Bossi of Bologna has been recognised as *privat-docent* of Orthopædics.

AN ADDITIONAL INSPECTOR FOR THE LOCAL GOVERNMENT BOARD.—The President of the Local Government Board has appointed Dr. Arthur Eastwood, one of the pathologists of the Royal Commission on Tuberculosis, an additional medical inspector of the Board, with a special view to his undertaking pathological investigations. Provision also has been made for the necessary assistance and laboratories. The immediate object will be to apply to public health work the very important results obtained by the Royal Commission on Tuberculosis, and thereby to ensure the freedom of important foods from the infection of this disease. It is intended also to investigate the similar problems which are constantly arising in connexion with other infectious diseases. These investigations will be concerned chiefly with current doubtful points in regard to disease. The new work thus inaugurated by Mr. Burns will include inquiry as to the pathological methods of diagnosis of disease already utilised in the public health work of many sanitary authorities. It is expected that by interchange of information good work will be encouraged and extended, and that coördination and standardisation of the bacteriological methods of diagnosis of disease will be secured. Dr. Eastwood's work is well known and we need only recall that he was one of the representatives of the Tuberculosis Commission at the International Congress on Tuberculosis held at Washington in 1908, and that, as a result of that visit, he wrote an able sketch of the American methods of control and improvement of the milk-supply which was published last May as the first of the new series of health reports issued for popular instruction by the Local Government Board (THE LANCET, vol. i., 1909, p. 1536). We are pleased to record the action of the Board in creating this scientific post, which is in keeping with the progressive spirit which Mr. Burns has shown in all matters of the public health during his tenure of office, and we congratulate Dr. Eastwood on his important appointment.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A meeting of the General Council of King Edward's Hospital Fund for London was held on Jan. 3rd at the offices of the Fund, 7, Walbrook, E.C. There were present: Sir William S. Church, Bart. (in the chair), the Rev. T. Bowman Stephenson, D.D., Lord Sandhurst, the President of the Royal College of Physicians (Sir R. Douglas Powell, Bart.), the Right Hon. Sir Savile Crossley, Bart., the Right Hon. Sir Joseph Dimsdale, Bart., the Right Hon. Sir Edgar Speyer, Bart., Lieutenant-Colonel Sir Arthur Bigge, Sir Horace Marshall, Sir John Craggs, Sir E. Cooper Perry, Dr. Edwin Freshfield, Mr. John G. Griffiths, and Mr. Albert G. Sandeman. A letter, received by the honorary secretaries from Sir Arthur Bigge on behalf of His Royal Highness the President, was read as follows: "The Prince of Wales regrets that he is unable to be in London on Jan. 3rd, and that consequently he cannot preside at the meeting of the Council. His Royal Highness desires to inform the Council that he has reappointed the Finance Committee as before constituted. Lord Richard Cavendish and Mr. Danvers Power retire from the Executive Committee, and the Honble. Sydney Holland and Dr. J. R. Bradford, M.D., F.R.C.P., have been appointed and the other members reappointed. To the Distribution Committee His Royal Highness appoints Mr. Danvers Power, Dr. F. H. Champneys, M.D., F.R.C.P., and Mr. Y. R. Eccles, and reappoints the other members except the Rev. Canon Barnett, who retires. Dr. J. Kingston Fowler, M.D., F.R.C.P., is appointed to the Convalescent Homes Committee, Mr. Alfred Willett, F.R.C.S., and Sir Richard Havelock-Charles retiring; the other members are reappointed. His Royal Highness greatly regrets the loss of the valuable assistance of Mr. Willett, and is very sorry that Mr. Hugh Smith, who has been actively associated with the Fund since its foundation, is temporarily indisposed and unable to be present at Monday's meeting of the Council. His Royal Highness trusts that he may soon be restored to health." The formal order signed by His Royal Highness, the President, appointing the members of the General Council, members of committees, and officers respectively for the year 1910 was read. The resolutions providing for the work of the Fund for 1910, which were approved at the meeting of the President and General Council held at Marlborough House on Dec. 13th, 1909, were formally adopted.

THE SOCIETY FOR THE STUDY OF INEBRIETY.—The next meeting of the society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on Tuesday, Jan. 11th, at 4 P.M., when Dr. Albert Wilson will open a discussion on "Alcoholism and Crime."

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANDERSON, J., M.D. Aberd., has been appointed Officer of Health for the Shire of Avon, Victoria, Australia.

CHEESE, F. W., M.B., B.S. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Harpenden District of the county of Hertford.

COLE, SAMUEL JOHN, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Inspector of Schools for the Administrative County of West Suffolk.

ERSKINE, A. M., M.D. R.U.I., D.P.H., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Goole District of the county of York.

GILLESPIE, J. R., M.B., B.Ch., B.A.O., has been appointed Assistant Medical Officer to the Hampshire County Council.

JONES, Rev. A. WENTWORTH, M.R.C.S., L.R.C.P. Lond., has been appointed Rector of Buckland Ripers, Dorset, by the Bishop of Salisbury (Patron)

LETHBRIDGE, C. F., M.R.C.S., L.S.A., has been appointed Officer of Health for the Shire of Seymour, Avenel Riding, Victoria, Australia.

MAIR, J., M.B., C.M. Glasg., has been appointed Medical Officer of Health and Medical Inspector of School Children for the Borough of Harrogate.

MARTYN, SAMUEL, M.B., M.S. Glasg., has been appointed Medical Officer to the Post Office at Airdrie and Medical Examiner of Local Teachers under the Education Department.

TAYLOR, D. M., M.D., C.M. Glasg., has been appointed Assistant Medical Officer of Schools at Halifax.

WATT, JOHN A., M.B., Ch.B. Aberd., D.P.H., has been appointed Assistant Medical Officer of Health of the county of Lanark.

WILLIAMSON, OLIVER K., M.D. Cantab., F.R.C.P. Lond., has been appointed Physician to Out-patients at the Hampstead General Hospital, with which is amalgamated the North-West London Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Assistant Surgeon.

ASHTON-UNDER-LYNE, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Senior House Surgeon. Salary £120 per annum and fees, with board, residence, and laundry.

BRISTOL ROYAL INFIRMARY.—Honorary Assistant Dental Surgeon.

BRISTOL, UNIVERSITY OF.—Demonstrators of Anatomy and of Physiology. Salaries £180 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £60 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgical Registrar. Salary 50 guineas per annum.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months. Salary £30, with board, residence, and laundry.

CARDIFF MENTAL HOSPITAL, Whitchurch.—Physiological Chemist. Salary £200 per annum.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and laundress.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary 100 guineas per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, &c.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, attendance, and washing.

HANTS COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £160 per annum, with apartments, board, washing, and attendance.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with full board and laundry.

JOHANNESBURG HOSPITAL.—Medical Man in charge of the X Ray and Electrical Department. Salary at rate of £500 per annum.
LANARK, COUNTY OF.—Two Junior Medical Inspectors of School Children. Salary £250 per annum.
LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—House Surgeon for six months. Salary is at rate of £50 per annum, with board, residence, &c.
LIVERPOOL STANLEY HOSPITAL.—Honorary Dental Surgeon.
LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Pathologist and Bacteriologist. Salary at rate of 50 guineas per annum.
LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.
METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Fitzroy-square, W.—Assistant Surgeon.
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Physician.
NAVAL FORCES IN THE UNITED KINGDOM.—Two Dental Surgeons. Salary £1 per diem, and travelling expenses.
NEW ZEALAND, OTAGO UNIVERSITY, Dunedin.—Bacteriologist and Lecturer in Public Health. Salary £500 per annum.
NORTHAMPTON, COUNTY BOROUGH OF.—Assistant Medical Officer of Health. Salary £200 per annum.
POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.
PRESTON ROYAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board, washing, &c.
QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—Pathologist and Registrar. Salary £80 per annum, and lunch.
ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Honorary Physician to Out-patients.
RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £125 per annum.
ST. PETER'S HOSPITAL, Henrietta-street, Covent Garden, W.C.—Three Clinical Assistants in the Out-patient Department.
SALOP INFIRMARY AND COUNTY HOSPITAL.—House Physician. Salary at rate of £70 per annum, with board and apartments.
SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with board, residence, and laundry.
SEAMEN'S HOSPITAL SOCIETY.—Assistant Physician and Assistant Surgeon at the Dreadnought Hospital, Greenwich.
SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.
STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.
WARWICK, HATTON ASYLUM.—Junior Assistant Medical Officer. Salary £150, with full board.
WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Honorary Assistant Surgeon. Also Honorary Gynæcologist.
WEST LONDON HOSPITAL, Hammersmith-road, W.—Surgeon. Also Honorary Clinical Assistant in the Dental Department.
YORKSHIRE, WEST RIDING.—Medical Inspector of Elementary School Children. Salary £300 per annum and expenses.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Aberdeen, in the county of Aberdeen; at Eyam, in the county of Derby; and at Skibbereen, in the county of Cork.

Births, Marriages, and Deaths.

BIRTHS.

HANCOCK.—On Dec. 30th, 1909, at Queen's Ride, Barnes, S.W., the wife of George C. Hancock, M.R.C.S., D.P.H., of a daughter.
LINNELL.—On Jan. 4th, at The Point, Sheringham, Norfolk, the wife of J. E. Linnell, M.B., B.C., B.A. Cantab., D.P.H. Lond., of a daughter.
MAXWELL.—On Dec. 27th, 1909, at Dowsett-avenue, Southend-on-Sea, the wife of J. Burns Maxwell, B.A. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.
MORGAN.—On Jan. 1st, at Marteg House, Westcliff-on-Sea, the wife of W. Harmon Morgan, M.R.C.S., L.R.C.P. Lond., of a son.
PARKER.—On Dec. 24th, 1909, at Moor River, Natal, the wife of Anthony Scott Parker, M.B., of a son.
ROBINSON.—On Dec. 25th, 1909, at Plymouth, the wife of Gerald Robinson, F.R.C.S., of a daughter.

MARRIAGES.

INGRAM—DONNITHORNE.—On Dec. 29th, 1909, at St. Paul's, Onslow-square, Thomas Lewis Ingram, M.A. Cantab., M.R.C.S., L.R.C.P., to Lilian, eldest daughter of the late Lieutenant-Colonel Donnithorne, Royal Scots Greys, and of Mrs. Donnithorne.

DEATHS.

DOUGLAS.—On Dec. 31st, 1909, at Birdwood, Wells, Somerset, Lieutenant-Colonel Campbell Mellis Douglas, V.C., M.D., R.A.M.C. (retired), aged 69.
HEYWOOD SMITH.—On Jan. 2nd, at 40, Portland Court, W., Emily Anne Gertrude, wife of Heywood Smith, M.D., aged 67.
ROSCOE.—On Dec. 31st, 1909, Henry Roscoe, M.R.C.S., L.R.C.P. Lond., D.P.H. Vict.
WHITE.—On Dec. 23rd, 1909, at Rothbury, Langdon-road, Upper Parkstone, Charles Joseph White, M.D., in his 85th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE CHRISTMAS PLAY AT ST. MARY'S HOSPITAL.

FOLLOWING the custom of many years the resident medical officers of St. Mary's Hospital gave a capital dramatic entertainment to the patients, nurses, and friends of the hospital on Dec. 29th and 30th, 1909, in the out-patient hall, which on the second night was filled to overflowing with at least 600 people. The play chosen was Henry L. Byron's famous comedy *Our Boys*, and was cast as follows:—

Sir Geoffrey Champneys (a county magnate)	Mr. D. W. Daniells.
Talbot Champneys (his son)	Mr. J. E. L. Johnston.
Perkin Middlewick (a retired butterman) ...	Mr. K. A. Lees.
Charles Middlewick (his son)	Mr. G. Galpin.
Kempster (Sir Geoffrey's man-servant) ...	Mr. R. A. Parsons.
Poddles (Middlewick's butler)	Mr. L. Colebrook.
Violet Melrose (an heiress)...	Mr. F. G. Caley.
Mary Melrose (her poor cousin)	Mr. R. H. S. Marshall.
Clarissa Champneys (Sir Geoffrey's sister) ...	Mr. P. N. Cave.
Belinda (a lodging-house slave)	Mr. H. L. Barker.

Act I.—At the Butterman's.
Act II.—At the Baronet's.
Act III.—Mrs. Patcham's Three-Pair Back.

The actors had evidently taken the utmost pains with their rehearsals, being word-perfect, a supreme virtue in amateurs, and in several cases showed strong dramatic talent. The hit of the evening was made by Mr. R. H. S. Marshall as the flighty Mary Melrose. Not only was he admirably made up and wore his frocks with becoming grace, but he threw himself into the female part in a manner rarely achieved by a male impersonator, while delivering his lines in contralto. Mr. F. G. Caley found more difficulty in turning his "manly voice again toward childish treble," although he scored a great success in his love-scenes with Charles Middlewick. In that somewhat sticky and conventional part Mr. Galpin did excellent work, infusing it with a life that it has been known to lack on a more ambitious stage. Mr. Kenneth Lees gave a ripe performance of the vulgar but good-hearted butterman, which was marred only by a disposition to fidget. Mr. Daniells was pompous enough as the aristocratic "Roman Father," Mr. J. E. L. Johnston maintained his noodle of a son's drawl with astonishing persistence throughout the evening, and Mr. H. L. Barker quite merged his identity into that of Belinda the slavey, presenting a really amusing character-study which gained its full recognition. Mr. P. N. Cave did his best with the thankless part of Clarissa, whilst Mr. R. A. Parsons and Mr. L. Colebrook said their few lines efficiently. The whole production reflected great credit on Dr. M. Mitchell Bird, the acting manager, and Mr. Frederick Clay, the stage manager, who with the actors received hearty calls at its conclusion. The *entr'acte* music was under the direction of Mr. W. L. Cowardin, amongst the artists who kindly gave their services being Miss Kathleen Peck, a charming soprano, Miss Gladys Rowland, Miss Steyerman, Mr. W. A. Reynolds, and Miss Edith Gosse, who performed the accompaniments. The scenery was effectively painted, we believe, by a porter of the hospital whose name did not appear on the programme.

"THE MODERN DOUCHE CRAZE."

"A POSSIBLY Old-fashioned General Practitioner" sends us the following observations on the douche, its use and abuse. "It appears that the modern woman, of the upper and middle classes at any rate, considers a vaginal douche an essential part of her daily toilet; this is, I think, an incontestable fact. She may be absolutely free from any morbid or abnormal condition; this makes no difference. Still the hydrostatic douche-box is to be seen hanging on the bathroom wall or the Higginson syringe from the towel rail in her bedroom. She is, to my mind, warring against Nature by the continual washing away natural secretions, and by forcible irrigation exposes to various infective agents areas of tissue denuded of their normal mucous membrane. It seems to me that the classes who do not use the douche as a regular habit are more free from the ordinary ailments and diseases common to women than those who do. The douche appears to me to destroy the natural covering, the protecting and lubricating agents, thus laying bare areas of absorbent surface, providing suitable foci for any germ with which it may happen to come in contact, so predisposing to pelvic cellulitis, peritonitis, and possibly even malignant disease by the continual irritation and constant stimulation to tissue repair. Are these conditions of pelvic inflammation and cervical catarrh more common now than they were in the days of our ancestors when vaginal irrigation was a practically unknown or unused quantity? We must all acknowledge the undoubted value of *vaginal* irrigation in conditions of leucorrhœa, in malignant disease with foul and fœtid discharges, also in pelvic inflammatory conditions; and hot *uterine* douching in post-partum hæmorrhage, or following intra-uterine manipulations for the removal of retained or adherent

placentæ. But the use of a daily, perhaps morning and evening, douching of hot water, or may be of some strongly antiseptic or strong solution as is now in common use amongst the upper and middle classes—is this not more than harmful to the normal woman? It has been my custom, at any rate, to condemn the indiscriminate use of the douche, allowing it only in morbid conditions. I have heard a woman exclaim that 'not to use a morning and evening douche was filthy.' I am not so certain that this is the case. Nature's secretions are surgically clean and designed for special purposes. Maintain absolute cleanliness; yes, by all means; but by *external* bathings with aseptics or antiseptics. You will find douching used in a normal confinement; this, to my mind, is likely to lead to complications. Nature provides an aseptic washing *a tergo*. Why substitute for this an irritating antiseptic washing *a fronte*? Having experienced general practice in town and country I am led to these ruminations on the 'vogue of the douche.'"

THE "COLANDER" TEAPOT.

INNUMERABLE devices as there are for preventing the over-infusion of tea, we do not remember one so simple or so convenient as the "colander" teapot shown in the accompanying illustration. Moreover, while the idea is effective the normal shape of the teapot is not interfered with. Just beneath the lid, and hung upon a button, is a moveable strainer or colander which can be lifted out of the infusion by merely depressing the hook of the colander with the thumb, and

fixing it in that position upon the button. The button, in fact, serves as a kind of hinge to the colander, which may be kept either in or out of the hot water at will. It will be seen, also, that the progress of the infusion can be helped by alternately depressing and raising the colander. All this is done, of course, with the lid on. The teapot is an artistic design, and is made by Messrs. W. A. S. Benson and Co., Limited, of 82 and 83, New Bond-street, London, W.

THE PRIZE OF THE ROYAL SOCIETY OF ARTS FOR LIFE-SAVING APPARATUS FOR USE IN NOXIOUS ATMOSPHERES.

IN June, 1907, the Council of the Royal Society of Arts offered, under the Fothergill Trust, a gold medal, or a prize of £20, for the best portable apparatus or appliance for enabling men to undertake rescue work in mines or other places where the air is noxious. In response to this offer a certain number of answers was received. The Council had hoped to be able to make practical tests of the apparatus submitted, but the facilities which they had expected to obtain for the purpose were unfortunately not immediately available, and consequently the proposed trials had to be postponed. The Council has been now informed that facilities for carrying out tests will shortly be available; but so long a time has elapsed since the original offer that some inventors who notified their intention of competing have already made considerable alterations and improvements in their apparatus, and applications have also been received from other inventors, whom the Council would regret to exclude from the competition. After careful consideration of the circumstances, and having regard to the fact that the right was reserved of extending the time for sending in, the Council has decided to cancel the original offer and to accept for competition any apparatus which may be submitted not later than 31st March, 1910.

The following are the terms of the offer now made:—In the award of the medal regard will be had, firstly, to excellence of design and contrivance; and, secondly, to excellence of manufacture. Credit will be given to such parts of the apparatus as are the invention of the exhibitor; the object being also to distinguish the apparatus which gives the best promise of being practically useful. Inventors intending to compete should send in a notice of their intention, together with a full description of their inventions, not later than March 31st, 1910, to the secretary of the Royal Society of Arts, John-street, Adelphi, London, W.C., and in cases in which the apparatus has been put into actual use the experience of such use should be given, and the special points of merit of the apparatus indicated. Notice will be subsequently sent to those competitors whose apparatus the judges may desire to test, together with an indication of the tests, of the manner in which the tests will be conducted, and the place where the tests will be made. Competitors intending to patent their inventions should be careful to obtain protection, as the Council of the Society cannot undertake any responsibility as regards the secrecy of the whole, or of any part, of an invention submitted to them. The prize will be awarded on the report of judges appointed by the Council. The competition is not limited to British subjects. The council reserve to themselves the right of withholding the prize, of extending the time for sending in, or of rewarding a smaller prize or smaller prizes.

VITAL STATISTICS OF JAMAICA.

Sir Sydney Olivier, K.C.M.G., Governor of Jamaica, reporting on the Blue-book of the colony for the year ending March 31st, 1909, gives the estimated population as 848,656 (males 413,899, females 434,757). The number of marriages during the year was 3116 (4·1), as compared with 6251 (7·4) in 1907–08, 5507 (6·6) in 1906–07, and 3116 (3·8) in 1905–06. "The sudden freshet of marriages let loose by the earthquake (following after two years of very low matrimonial water) has now evidently exhausted itself, and the island rate has reverted to the average of the five years preceding that spiritual quickening." The number of births registered was 31,785, against 29,210 the previous year. Illegitimate births formed 60·5 per cent. of the total; the average percentage of illegitimate births during the last ten years has been 63·5. 18,928 deaths were registered, being 22·4 per 1000 of the estimated population, a remarkable drop from the 28·3 of 1907–08 and the 26·2 of 1906–07, and a slight improvement on the average rate (22·6) of the previous five years. Of the deaths medically certified 18·9 per cent. were imputed to diarrhœa, enteric fever, enteritis, dysentery, or gastro-enteritis; 9·9 to phthisis; 2·2 to tuberculosis, other than tuberculous phthisis; 4·4 to pneumonia; 4·5 to malarial fever; and 3·7 to fever undistinguished; that is to say, 43·6, out of 90·1 identified, as due to communicable diseases amenable to abatement by sanitary measures. The high rate of mortality from such diseases, which has been noticeable in Kingston since the earthquake, has aroused public opinion to a lively sense of the importance of sanitation, and the health authorities, not only in Kingston, may be expected, the Governor thinks, to give more careful and effectual attention to this subject than they have been in the habit of doing. At the Public Hospital in Kingston 10,764 patients were treated during the year—3927 as in-patients and the rest as out-patients. There were 596 admissions to the lying-in hospital, 1269 cases treated in the lunatic asylum, 19,464 in the public general hospitals, and 115 in the leper asylum. In addition, the district medical officers treat free of charge all inmates of the parochial almshouses and all registered paupers, the number of out-patients during the year being 31,492, while 5332 cases of yaws were treated and 21,662 successful vaccinations performed at Government expense. The repair of earthquake damages at the Public Hospital has been undertaken and certain improvements effected, and a decision arrived at to utilise a bequest of £2049 15s. 3d. from the late Miss Rietti for the construction of a new ward, to be known as the "Rietti Ward." All the other hospitals of the island have been maintained in fair order.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

MEDICAL AND SURGICAL SECTIONS: at 5.30 P.M.

Adjourned Joint Debate:
On the Diagnosis and Treatment of Duodenal Ulcer. The following will take part:—
Dr. R. Hutchison, Dr. Hertz, Dr. Nathan Raw, Dr. R. H. Hodgson, Dr. G. Herschell, Dr. F. Craven Moore, Mr. L. A. Bidwell, Mr. C. P. Childe, Mr. H. J. Paterson, Mr. Harold Collinson, Mr. B. G. Moynihan, and others.

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—William J. Gow, G. F. Blacker): at 7.45 P.M.

Specimens:
Mr. H. J. Paterson: Sarcoma of the Uterus.
Dr. J. B. Hellier: Adenoma Malignum Cysticum Cervicis Uteri.
Dr. Cuthbert Lockyer: Two Cases of Pelvic Hæmatocele of Ovarian Origin.
Dr. Macnaughton-Jones: A Specimen.

Short Communication:
Dr. Inglis Parsons: Notes on a Case of Prolapsus Uteri with Severe Cardiac Disease, Operated on under Local and Spinal Analgesia.

Paper:
Mrs. Scharlieb: The Relative Frequency of Malignancy in Ovarian Tumours.

FRIDAY.

CLINICAL SECTION (Hon. Secretaries: H. D. Rolleston, Albert Carless: at 8.30 P.M.

Cases:

Dr. Howard Heaton: Rectal Stricture treated by Fibrolysia.

Mr. J. E. Adams: Empyema Cured by Thoracoplasty.

Mr. Herbert Tilley: Objective and Rhythmical "Clicking" Noise in the Left Ear, associated with Synchronous Contraction of Certain Muscles forming the Floor of the Mouth.

Mr. Somerville Hastings: Bending of the Bones of Both Legs, and Partial Ankylosis of Both Hips.

Dr. Parkes Weber: (1) Chronic Arteritis Obliterans of a Lower Extremity associated with Phlebitis; (2) Intermittent Claudication of the Lower Extremity Due to Arteritis Obliterans (in a Tobacconist).

And other Cases.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Pathological Evening. Specimens will be exhibited by Dr. P. Weber, Dr. L. Guthrie, Dr. W. d'E. Emery, Dr. Spilsbury, Dr. Fleming, and others. Demonstrations by the new epidiascope.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Mr. M. Moullin: The Early Diagnosis of Carcinoma of the Stomach (Hunterian Lecture). (Members of the profession are invited to attend.)

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Millbank, S.W.

WEDNESDAY.—8.30 P.M., Lieutenant-Colonel J. B. Wilson, R.A.M.C.: Management of Venereal Disease at Woolwich.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Board Room of the Great Northern Central Hospital, Holloway-road, N.

THURSDAY.—Mr. C. B. Lockwood: The Relationship between Cancer and Chronic Inflammations of the Breast.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. E. R. McDonagh: Clinique (Skin). 5.15 P.M., Lecture:—Mr. S. Stephenson: Ophthalmia Neonatorum.

TUESDAY.—4 P.M., Dr. L. Smith: Clinique (Medical). 5.15 P.M., Lecture:—Mr. H. S. Collier: Post-operative Treatment of Abdominal Cases.

WEDNESDAY.—4 P.M., Mr. A. Edmunds: Clinique (Surgical). 5.15 P.M., Lecture—Dr. S. Spicer: A New Cardinal Principle in the Treatment of Disease and its Application in Disorders of the Nose and Throat.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. E. Squire: Asthma and its Treatment.

FRIDAY.—4 P.M., Dr. W. Hill: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Morton: X Ray Examination of Thorax.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Saunders: Clinical (with cases).

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Mr. Armour: Thecal Abscess.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Medical Registrar: Demonstration of Cases in the Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: Plague.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Mr. B. Harman: Diseases of the Eyes. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson). 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Dr. R. M. Leslie: The Patient's Constitution.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Lecture:—Dr. A. G. Auld: Pulmonary Dilatation and Emphysema (Second Lecture).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.

TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.

WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.

THURSDAY.—3 P.M., Clinical Demonstration:—Dr. T. D. Savill.

FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M. Clinical Demonstration: Dr. E. Macnamara.

ST. MARK'S HOSPITAL FOR CANCER AND OTHER DISEASES OF THE RECTUM, City-road, E.C.

MONDAY.—5.30 P.M., Lecture:—Mr. F. S. Edwards: Diagnosis.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (15th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic 10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 5th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 30	30·40	S.W.	...	48	46	35	36	36	Foggy
,, 31	30·14	S.W.	...	70	52	35	45	46	Overcast
Jan. 1	30·37	W.	0·03	48	45	38	38	38	Foggy
,, 2	30·34	S.W.	0·07	61	56	38	48	49	Overcast
,, 3	30 37	W.	...	52	51	49	48	50	Overcast
,, 4	30 45	W.	...	52	48	45	45	46	Overcast
,, 5	30·41	W.	...	45	45	41	42	43	Overcast

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